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ST. LAWRENCE RIVER PILOTING.

Since the remarks of the Canadian Minister of Marine in the House of Commons on the navigability of the St. Lawrence river from Kingston to Montreal for vessels drawing fourteen feet, considerable discussion has arisen among sailors on the subject and Kingston mariners have been asked by parliamentarians and newspapers to state their views on the question.

Capt. George Batten, the capable pilot of the Richelieu and Ontario Navigation Co., had no hesitation in saying that in the spring it would be quite safe for vessels drawing fourteen feet to go from Kingston to Montreal without fear. In the fall under present conditions, it was not to be expected, for the water then is at the lowest point. During the past season and late in the fall vessels drawing thirteen feet have safely gone to Montreal and one vessel drawing thirteen and a half feet touched once.

The captain admitted that there were some danger points, which the government should carefully examine. The marine department had done good work in past years and it was quite evident it desired to make the navigation of the upper St. Lawrence as safe as possible for the vessels which purpose going through from Chicago to Great Britain ports. In lake St. Louis, and by the new cut near Prescott, valuable work has been done and navigation made safe. Between Prescott and Dickenson's Landing quite a few points need to be straightened and this he is sure the government will do as speedily as possible. At the foot of Wolfe Island some dredging and clearing of the channel is needed. The use of the "Lift Lock," avoiding the Galop rapids is a desirable help to heavily laden vessels and relieves navigation of dangerous passages in the rapids.

Capt. Batten is quite emphatic in his contention that there is no danger in the early part of the season for vessels drawing fourteen feet to reach Montreal.

Capt. Andrew Dunlop, long on the river and for years with the R. & O. Navigation Co., was also sure that a careful navigator could take a boat drawing fourteen feet to Montreal. He admitted it was an experiment for pilots who knew every foot of the way with vessels drawing ten and twelve feet were somewhat "at sea," as to vessels of greater depth. It was easy to fetch up on shoals that were not known under other circumstances.

The captain thought the most dangerous point for the deep draught vessels would be at the foot of Wolfe Island, where the ground was shoally and where suction was keen and deceiving. If the government would touch up the points at several places along the route it would be perfectly safe for deep draught vessels.

Both the captains said that every time a vessel touched the locality should be marked and the authorities notified and in this way improvements could be speedily made.

On the other hand, Capt. Thomas Donnelly is quite positive that the channel is not serviceable for vessels drawing fourteen feet. In December last Capt. Donnelly gave a statement concerning the difficulties to be met with between Kingston and Montreal. He stated that above the Cardinal canal, and within a quarter of a mile of the entrance, there is a shoal over which all downward bound vessels must pass and at present this shoal is the key of the situation as far as the navigation of the river with a 14 foot draught is concerned. A very careful test of the water at this point, made on the 13th of November, 1900, by the government engineer in charge, revealed the fact (well known previously by pilots) that when there is a depth of water corresponding to eight feet on the mitre still of the old guard lock, and that was the average depth at that date, there is a channel 140 feet in width at this point, with safe navigation for a vessel of 12 feet draught.

The engineer in charge established a gauge at Prescott, on

the elevator dock, corresponding to the eight feet datum. It is true the canals have been deepened to 14 feet, but the shoal mentioned must be passed over by all downward bound vessels, and during the east wind in November, the pilots found that vessels could only navigate with safety drawing 10 feet 6 inches. There are also dangerous shoals at Sparrow Hawk point and Rapid de Plat, and Capt. Donnelly states that the latter shoal has barely 13 feet of water on it, right in the middle of a very stiff current. The captain is prepared to prove that his statements are correct. The only object he has is to induce the government to look into the matter, and clear away these shallow spots, which can be done at very little expense. The forwarding companies only load their barges to 12 feet, although the barges would carry in most cases 10,000 bushels additional if fully laden, and if the water was in the channel would only be too glad to use it. The steamer Seaford, drawing eleven feet three inches was detained at Prescott seven days in November last, waiting for a change of the wind to raise the water.

LAKE ERIE'S LEVEL.

At the annual meeting of the Ontario Land Surveyors' Association just held in Toronto, Mr. J. W. Tyrrel, of Hamilton, read a timely and interesting paper by Mr. F. W. Farncomb of London, on the regulation of the level of Lake Erie. The lower level of the lake consequent on the present large quantities of water being drawn off for electrical power purposes means a serious loss to navigation, and if, as proposed by Mr. G. Y. Wisner of the United States Board of Engineers on "Deep Waterways," its level is to be kept up, a dam at Black Rock Harbor 2,810 feet long and costing, with a suitable channel, \$2,400,000, is the principal feature of his proposed plan.

DEEP WATER CHANNEL DREDGING.

We give the following from one of our exchanges for what it is worth: "An apparatus has been patented by an inventor in Drunshambo, Ireland, which he claims is an improvement, in many respects, over the old methods of dredging deep-water channels for large ships. The patents on the invention have been taken out in eighteen different countries.

"The apparatus consists of a pair of large steel cylinders, with elongated lips projecting from the central portion which were adapted to engage the earth as the cylinders are drawn toward each other, scooping the earth into the rear portion of the cylinders. The arrangement is such that the vessel can be floated to any required position and then drawn apart to the required distance and sunk to the channel bed. The controlling apparatus on the ship above then begins to tighten the chains, causing the cylinders to be forced toward each other, which presses the scoops into the earth and causes a layer of the material of any desired thickness to slide into the cylinders. When the latter are filled they are tilted backward until the opening is at the top. When the water in the end compartment is forced out by injecting air, and the vessels rise to the surface, to be transported to the dumping ground.

COMPASS jewels, somewhat less than a sixteenth of an inch in length and diameter, composed, respectively, of white and yellow agate, cut concave or cup shaped at the ends, and having a small hole partly drilled through at one end, and which are expressly designed for use as bearings for the lower staff of compasses, are dutiable at 50 per cent. ad valorem under the provision for manufactures of agate in paragraph 115 of said act, and not a 10 per cent. ad valorem as watch or clock jewels, nor as precious stones cut but not set, under paragraphs 191 and 435 of said act.

HEIGHT OF OCEAN WAVES.

A very interesting series of wave studies from the pen of Mr. Vaughan Cornish is now appearing in the columns of Knowledge, in the January issue of which the size of waves is dealt with. In the course of this article Mr. Cornish says that it was in the Southern Indian Ocean, between the Cape of Good Hope and the isles of St. Paul and Amsterdam, in the region of almost continual westerly winds, that the largest waves were observed. On October 25, 1867, during a gale from the northwest, with violent snow squalls, 30 waves were measured at different times of the day, which averaged 29.53 feet in height. The largest of them were 37.53 feet in height, and of these no fewer than six in succession were observed, which followed one another with admirable regularity. They lifted the corvette as if it had been a whaleboat, then left her wallowing in a deep trough, extending far on either hand.

Lieutenant Paris, who made these observations, had to mount to the twenty-second rat line of the shrouds before he attained the level of the crest. On the evening of the same day waves even larger were seen but not measured. Those on board the corvette seem to have agreed that the waves of this October 25 were the largest within their experience. The height of the individual waves was often found to vary in the proportion of 1 to 2; it was only in very favorable conditions that the average height was 0.7 or 0.8 of the extreme height. In the open ocean a strong wind soon caused waves of as much as 10.4 feet.

The distance from crest to crest was found often to vary in the proportion of 1 to 3 in two successive waves. In a rising sea the wave length increased more rapidly than the height, a process which was found to continue for several days. Thus, to the east of the Cape of Good Hope, during strong west winds, which blew with great regularity for four days, the height of the waves only increased from 19.69 to 22.97 feet, while the length, which was but 370.74 feet, on the first day, had attained 771 feet on the fourth. This was the greatest daily average length observed, but individual cases occurred in which more than 1,312 feet separated two succeeding ridges, and an interval of 984 feet was not uncommon.

WET PROCESS FOR COPPER EXTRACTION.

A plant has been erected at Papenburg, Germany, to work the Hoepfner electrolytic process for the extraction of copper. The capacity is given as one metric ton of refined copper per day.

The ore is first crushed in Grusonwerke ball mills and leached with cupric chloride solutions. This dissolves the copper, lead, nickel and silver, the cupric salt being reduced to the cuprous state. After being purified and freed from silver, the solution is allowed to flow to a compartment with carbon anodes, regenerating the cupric solution, which is returned to a fresh charge of ore. The claim is made that 91 per cent. of the retained copper was obtained after four hours' treatment of Rio Tinto ore containing 3.37 per cent. copper and only 3 per cent. of the iron content dissolved. By longer contact 98.5 per cent. of the copper was extracted with but 4 per cent. of the iron taken up. Another claim is preferred—that one horse-power in twenty-four hours will produce fifty-four kegs of copper, as against fifteen kegs by the sulphate process.

CARRIERS OF GOODS—Presumption of Negligence.—Negligence must be presumed where a steamboat proceeding quietly up the Ohio river was run into the bank by the pilot so hard as to knock a hole into the bottom of the boat big enough to sink it, and there was light enough to see, and no reason shown for the accident. Louisville & C. Packet Co. vs. Smith, 60 S. W. Rep. (Ky.) 524.



BUFFALO.

Special Correspondence to The Marine Record.

Extra steamboat service is to be put on this season between Port Dalhousie and Toronto.

Arrangements are being made to open Welland canal Monday, April 22, several days earlier than last year.

The boilermakers working on boats have gone on strike this week out of sympathy with the marine engineers.

The Buffalo Harbor Tug Firemen's Union is after Andrew Smith the late custodian of the funds, a warrant has been sworn out for his apprehension.

The naval shipping office now in the White building, will open a branch at Rochester. The Navy Department appear to be well pleased with the timber selected at this point.

The engineers' strike is making the coal people guess how they are going to forward an early supply to the head of the lakes. The impression is that the boats will be running some way when navigation opens.

E. T. Carrington, of Bay City, has bought from Capt. P. C. Smith the barge Allegheny, but the price is not given out. The Allegheny originally belonged to the Anchor line. Her gross measurement is 680 tons.

M. J. McCormick, the Green Bay agent of the Lackawanna line, is authority for the statement that the iron steamers Cuba and Russia, now wintering here, will have cabin and stateroom accommodations for 100 passengers each.

The marine section of the Toronto Board of Trade has decided to recommend the abolition of canal tolls on grain passing through the Welland canal, and to join with other bodies in urging upon the government the advisability of the abolition of such tolls. The adoption of the changes in rules of the road recently adopted by the United States was approved. It was also decided to recommend improvements to the light-house at Middle Island and Point Pelee, Lake Erie.

The softening up and breaking away of the ice from the fringe around the shore has placed fishermen in great danger and broke up their chance of making a living for the present. From all points on the lakes, including this vicinity, fishermen have been sent adrift on ice floes while pursuing their occupation, and in the majority of cases rescued only after great suffering. Luckily no lives have been lost that I have heard of, but there have been numerous close calls.

A shipmasters' protective association has been talked of here all week, to be more on the lines of a labor organization than the present fraternal club. It is said that nearly all of the Cleveland masters are enrolled at \$2.00 per, but it has not taken with a very rapid rush here, as most of the masters are well satisfied with their employers and the treatment uniformly accorded them. Capt. M. H. Place is the organizer of the new order and Capt. C. H. Woodford is in charge as senior officer at Cleveland.

G. H. Wiederhold, president; Frank Meeker, secretary, and Judge Thomas H. Williams, attorney for the International Navigation Company, which is to run a line of boats between Buffalo and Niagara Falls this summer, arrived in the city from Brooklyn, and looked over the proposed route and arranged to begin business on May 1. Martin C. Ebel, general manager for the company, stated that the officials of the company have great faith in the success of the Pan-American, and they expect to run the boat line after this year. Their new boats are now being put in shape to bring here in April. An excellent service will be given to the people. E. J. Matthews of Toronto has been appointed traffic manager of the line; W. E. Tuttle of Niagara Falls, general passenger agent; M. J. Galvin of Buffalo, port captain; G. H. Werner of Brooklyn, auditor; George Fraser of Buffalo, ticket accountant.

The report has come from Montreal that the Connors syndicate will presently forfeit the \$50,000 it deposited with the harbor commission to guarantee the erection there of two big elevators. It is said that the harbor commission will ask F. J. Clergue, a rising figure in Canada's industrial life, to take up the work where Mr. Connors left off. The statement is made at Montreal that Mr. Connors purposely delayed the work, thinking to benefit Buffalo as a gateway to New York by this procedure. It is said that the work has been delayed because Mr. Connors has been unfortunate in his backing. He thought he had a good financial foundation upon which to build, but some of his men were won away by the big steel corporations, and invested their money in other places. This compelled him to look for new aid, which he has found. He has been a little tardy in his movements, but it is said that he will begin in the spring to push the enterprise vigorously, and there will be no bonds forfeited without a struggle.

CHICAGO.

Special Correspondence to The Marine Record.

The Northtown, the last of four ocean-going steamers built at South Chicago for the Northwestern Steamship Co., was launched on Saturday.

It is reported here that the Maytham Co. will station a tug at Manitowoc for the season. The Arctic, of the Goodrich Line, had more than she could do last year, and it is said that there is enough work for another good boat.

Secretary of War Root has declared Paw-Paw river, entering St. Joseph, Mich., navigable. The stationary bridges are ordered removed, and there is much satisfaction expressed in shipping and commercial circles, as it will add miles of dock property.

The Crosby Transportation Co.'s tug O. M. Field sank at the Grand Trunk Railway dock at Grand Haven on Saturday morning. Fireman Orrie Van Hall, who slept on board, barely managed to get off before she went down. The Field was engaged in breaking ice, and the oakum probably worked out of her seams. She lies in twenty feet of water.

Boilermakers employed on the steamer Italia, owned by Capt. James Corrigan, a member of the Executive Board of the Lake Carriers' Association, have gone out on a strike at South Chicago in sympathy with the marine engineers. The action follows the receipt of a telegram from the boilermakers' union at Buffalo, which stated that the members of the union there had struck on all jobs of members of the Lake Carriers' Association.

The Milwaukee Tugboat Line expect their new steamer to be ready in October next. Her general hull dimensions will be 394 feet keel, with a 20 foot overhang, making her full overall length 414 feet, beam 48 feet, and 28 feet molded depth. Engines, triple-expansion, diameter of cylinders, 22, 35 and 58, with 40 inches stroke. Boilers three of the Scotch type. Equipment to be of the highest order ever fitted on a lake cargo steamers. There is also an intention expressed to build a sister ship when the yards are not quite so busy as at present.

Officers of the Lake Carriers' Association profess to be satisfied with the condition of affairs regarding the engineers strike. Capt. J. G. Keith, first vice-president of the Lake Carriers' Association, is reported as having said that he hoped the engineers would keep matters tied up until the end of June, as the same tonnage would be carried after that date and it would save expense. A Cleveland paper gave Capt. A. B. Wolvin's list of appointments for engineers on his fleet this season, so he surely could have had no idea of the dissatisfaction existing among his employees. Capt. Wolvin is president of the Lake Carriers' Association and ought to have known how matters stood as soon as anybody.

Burger & Burger, Manitowoc shipbuilders, have well under way a tug for the Chicago Lumber Co. Her engine is to be an 18x20, and the shaft will swing a Sheriff's wheel of 5 feet 5 inches diameter. The engine is of Buffalo manufacture. In addition the firm has contracts for two fishing tugs. One of these will be built for Borkenhagen, Mader & Scheerer, of Kenosha, who own the Fred Engel. She is to be 72 feet long, with 15 feet beam and 7½ feet hold. Her engine, a 14x16, will be built by the Sheriffs Manufacturing Co., Milwaukee, and Hess, of Manitowoc, has the contract for the boiler, 5½x11 feet. The second tug is for a fishing firm at Manistique, Mich. She will have a length of 75 feet, with 17 feet beam and 8 feet hold.

An effort is being made to organize a lodge of the Shipmasters' Protective Association at all the leading ports. Capt. M. H. Place, of Cleveland, according to a dispatch from Milwaukee, is interested in the organization of a branch at that port which starts out with thirty-six members. The dispatch says: "Though the announcement may be premature, there is no doubt that the Shipmaster's Protective Association will support the marine engineers in their demands for more help, if need of assistance becomes apparent. This new organization the Shipmasters' Protective Association, is in no wise connected with the Shipmasters' Association, though members of the latter, it is said, have joined the protective association."

CLEVELAND.

Special Correspondence to The Marine Record.

There is no more talk of chartering or freight rates, for as an owner told me "we are on strike for better times, less insurance, quick dispatch and high freight rates."

The report that the Morgan syndicate is after the yards of the American Ship Building Co. is denied by the officers of the company, so also is the repeated statement that the company would operate a shipyard near Montreal.

There has been danger all week of an ice jam and overflow on the river, but the fire boat Farley managed to keep an open channel and now the owners of river property as well as craft tied to the docks are a little easier in their minds.

Mr. E. Platt Stratton, chief engineer surveyor for the American Bureau of Shipping, New York, the classification society so universally known, and publishers of the "Record of American and Foreign Shipping," visited Cleveland this week on a business trip.

A vessel firm in Milwaukee, writing of the situation, says that a few charters will be made shortly at two and a quarter cents on grain to Buffalo and two cents to Midland. A number of boats were placed for charters, but since the strike of the marine engineers they have been withdrawn.

Capt Place is an energetic worker, if there is any means of organizing a masters' union, or rather, if kicking from port to port and arguments will to it, he will soon have a full fledged employes' union among masters and pilots. This is according to the Australian plan and it has worked there for years, also among the European officers in India and China.

Mr. George Stainsbury of London, assistant chief surveyor for London Lloyds, and Mr. J. H. Mancor, of New York, engineer surveyor, inspected the construction of the two ocean steamers building at the local yards under the classification of the London Lloyds. The two experts will make a tour of the lake yards to see the methods and practices in vogue.

Two more vessels were added to the fleet of Captain J. C. Gilchrist this week. One was the steamer Lansing, bought of the Whitney Transportation Co., of Detroit, and the other was the schooner Twin Sisters, purchased from Ben Boutelle, of Bay City, Mich. The purchase of these two boats gives Captain Gilchrist a fleet of forty-six vessels. The steamer Lansing was built in 1887. She has a gross tonnage of 1,611 and a net tonnage of 1,247. She is therefore capable of carrying about 3,500 tons. The schooner Twin Sisters, which will be towed by the Lansing, came out in 1889. Her keel length is 204 feet and her beam is 35 feet. Her gross tonnage is 806 and her net tonnage is 747.

Publishers of the Iron Trade Review announce that on March 1 the paper becomes the property of the Iron & Steel Press Co. The same company has also purchased The Foundry, of Detroit, the well known monthly publication which occupies a unique position in relation to the foundry industry. Both journals will have their publication office in the Rose building, Cleveland, and will be directly represented also through editorial and business offices in Pittsburgh, Chicago, Philadelphia and Detroit. More power to Messrs. Gardner and Findley. For some time past they have been publishing the most reliable of all the trade journals in America of an iron and steel kind.

DETROIT.

Special Correspondence to The Marine Record.

The steel freighter Mars, being built at Wyandotte for J. C. Gilchrist, will be launched Saturday.

Capt. James Davidson being no longer a member of the Lake Carriers' Association, is to be supplied with engineers on conforming to their schedule of wages, etc.

It is rumored that if the bill for a bridge across the Detroit river fails to pass the next Congress the Michigan Central railroad will construct one of the best ice-crushing car ferries that can be obtained for winter work in the river.

The steamer Lansing, of the Whitney Transportation Co., and the schooner Twin Sisters, belonging to a Bay City firm, have been sold to J. C. Gilchrist, of Cleveland. This makes Gilchrist's fleet consist of 46 vessels, the largest fleet owned by an individual on the lakes.

Ice has given a great deal of trouble here for several days. The railroad car ferries have been stalled, dynamite used, and every effort made not to delay the passenger and freight traffic. Transportation has been a sort of demoralized just the same, but the trouble is now over.

Homer Warren, of Detroit, has purchased from Richardson & Gaskin, of Buffalo, the barge Ida Keith, and will place her behind the steamer Homer Warren the coming season. The price paid for the barge is supposed to be about \$5,000. Capt. Dudley R. Parsons, of Detroit, has been appointed master of the Warren.

The passenger lines are making terms with the engineers, or rather, acceding to their demands. George B. Uhler, the president of the engineers' association is due here on Saturday from Chicago and will remain for several days according to present plans. The Bessemer (Rockefeller Line) is in the Lake Carriers' Association, and could put up a great old fight, but will it, so also could Pickands, Mather & Co. of Cleveland. There are engineers on the passenger boats not belonging to the union, but union men have always worked with them. The idea now seems to get the passenger boats going and then to disrupt the Lake Carriers' Association entirely, rip it up the back, split it from stem to gudgeon, and what's to stop them. This deal has got into unionism, association rights or wrongs, and is now growing strongly personal between the men that pull the wires. Engineers are kept on the bitter edge towards owners and the fight's to a finish. The situation, which has been presented time and again, is simply this, back out of the owner's association, pay the increased wages demanded and carry more help wherever it is said to be required, then, and only then, will we work. The owners are saying or doing nothing as yet and there is no telling which way the cat is going to jump, but pussy seems to be cornered all right enough. The outlook is none too good for decent freights at the opening of navigation, and a large number of owners would as soon keep their boats moored to the dock for about a couple of months yet. This would have a tendency to boost freight rates and they feel like waiting; at the same time, they won't be intimidated by labor and there is no use of anyone getting too arbitrary, either master or engineer. This is as far as I can gather the feeling here now, though the whole story is not told, nor will they tell it.

St. Clair river is blocked with ice on the Canadian shore as far as Sarnia. The ferry boats are experiencing some difficulty in crossing the river this morning.

DULUTH-SUPERIOR.

Special Correspondence to The Marine Record.

The John Spry Lumber Co., Chicago, closed a deal this week with W. H. Gilbert for nine million feet of lumber.

The Fisher & Wilson Co., Cleveland, made some large purchases of lumber here this week, which is to be shipped on the early opening of navigation.

The Edward Hines Lumber Co., Chicago, have been more than active in the Lake Superior trade this winter, a large deal is also reported from Menominee involving \$65,000.

The largest grain elevator in the world took in a sprinkling of 5,000 bushels of corn this week. Elevator S as it will be known will have machinery to handle about 600 car loads of grain in twenty-four hours, or ship 310,000 bushels into vessels. Its capacity is 4,000,000 bushels and it well upholds the prestige of the head of the lakes. Some work can be done, but it will take the best part of the summer to complete the machinery, etc. Anyone disposed to talk grain elevators had better look here first.

The biggest individual purchase of lumber that has been made in the Duluth market in a long time was closed this week when the Clark-Jackson Co., sold to the Cleveland Box Co. 21,000,000 feet for delivery this year. The deal involves about \$240,000. Charles T. Williams, representing the box company, has been here several days making negotiations. D. C. Thompson & Co., are the shippers and inspectors in the deal. The sale is the outcome of a visit of M. J. Clark, of Grand Rapids, Mich., and S. C. Jackson, of Duluth, to Cleveland some weeks ago. The big purchase of the Cleveland Box Co., embraces 9,000,000 feet of box lumber on the docks of the Clark-Jackson Lumber Co., 12,000,000 feet of No. 3, 4 and 5 boards, and box shorts, to be manufactured the coming season.

Now comes along the report that the Canadian Northern Railway has just let a contract for 7,000 piles for the elevator, coal docks, and other terminal foundations on their terminal grounds at Port Arthur, Ont. Plans are ready for a two million bushel elevator. They have two round-houses, the last one fitted up with all modern machinery. A gang of men are laying out the water front for the foundations. The track is laid from Port Arthur to Aticokan, and seventeen miles more are ready for the rails. Heavy rock work is being proceeded with, and the whole line is covered with camps and provisions ready for a big push when the frost goes. Five thousand men will then be needed. The contractors can finish the railway to Winnipeg by the middle of August. Many miles of the railway will cost nearly a hundred thousand dollars per mile. One million dollars will be spent on the water front at Port Arthur.

It is reported that the Clergue syndicate, controlling extensive interests in the Michipicatan iron district, a railroad from the Sault to the district, and a boat line for delivering the ore at lake ports is to put three moderate sized passenger boats on the north shore route between Duluth and the Sault, and two others between the Sault and Georgian Bay. The report is that F. H. Clergue, while in England, purchased three boats of moderate size for the route between Duluth and the Sault. Little is known about the matter here. The announcement that a new passenger line is to be put on the north shore will be received with surprise. The Beatty line and the Northern Navigation Co., operate four boats between Duluth and Georgian Bay at the present time and a new steamer is coming to go on this run next summer. The boats now on the route between Duluth and points east of Sault. Ste. Marie, are the Monarch, United Empire, City of Collingwood and Majestic. Until more is known of Mr. Clergue's plans in this connection the new boat line will be very much doubted although such a trade may develop later.

The scale of wages agreed upon for the year by the Lumber Carriers' Association and Longshoremen will be fifty cents an hour, ten cents less than was paid last year. The shipments are expected to be much greater than last season. The captain shall have the privileges of hiring and discharging men providing he has just cause, always giving union men the preference. Whenever there are not union men enough, the captain shall have the privilege of hiring non-union men, excepting in cases where union men have been discharged or refused to work on the same conditions; then only union men can be hired. There shall be no restriction placed by the longshoremen upon the amount of work each man shall perform. In all cases of dispute the loading of a boat shall continue uninterrupted, and the matter in question shall be referred to arbitration. The president of the Lumber Carriers' Association shall represent the vessels, and the president of the International Longshoremen's Union shall represent the longshoremen. The rate of wages shall be fifty cents per hour for the entire season of 1901. A certified list of members of the Lumber Carriers' Association in good standing, and the name of the vessel annexed, shall be sent by the secretary of the Lumber Carriers' Association to each of the local unions on the various chain of lakes, on or before April 15, and as the additional names are annexed, notices shall be sent from time to time to the various locals, and each vessel shall have certificate showing that same is properly enrolled in good standing. On and after the adoption of this agreement, under no circumstances shall there be any deviation therefrom, or any change except by joint conference, agreed to by the Lumber Carriers' Association on the one side and the International Longshoremen's Union on the other.

John Inglis & Son of Toronto, Ont., are building the engines and boilers for Beatty line steamer now in course of construction at Collingwood.

MR. PARSONS ON TURBINE WHEEL PROPULSION.

In a recent lecture delivered by Mr. Parsons, inventor of the steam turbine, he gave a very complete description of the hull and machinery of the torpedo boat destroyer Viper, and some of the principal advantages which turbine wheel propulsion has over the ordinary single screw.

The screw shafts of the Viper are carried by brackets as usual, and two propellers are placed on each shaft, the foremost in each case having a slightly lesser pitch than the after one. The thrust from the screw shafts is entirely balanced by the steam acting on the turbines, so that there is extremely little friction. The boilers, auxiliary machinery, and condensers are of the usual type in such vessels, but their size is somewhat increased to meet the much larger horse-power developed, and to compensate for the lesser weight of the main engines, shafting, propellers, as well as the lighter structure of the engine beds. The boilers are of the Barrow type, with a total heating surface of 15,000 square feet, and grate surface of 272 square feet. The condensers have a total cooling surface of 8,000 square feet. The hull and all fittings are of the usual design. Let us consider the machinery on one side of the vessel only. The steam from the boilers is admitted directly through a regulating valve to the high-pressure turbine driving the outer shaft. It then passes to the adjacent low-pressure turbine, driving the inner shaft independently. Thence it flows to the condenser, and both the shafts then drive the vessel ahead. The reversing turbine revolves with the low-pressure shaft, and, being permanently connected with the vacuum of the condenser no appreciable resistance is offered to its motion under these conditions. To go astern the ahead steam valve is closed and the astern valve opened, admitting the steam from the boilers to the reversing turbine and reversing the direction of rotation of the inner screw shaft. On the other side of the vessel the arrangement is the same, and it will be seen that she can be manoeuvred as an ordinary twin-screw vessel, and with great facility and quickness.

With full trial weights on board, and at a displacement of 370 tons, a mean speed of 36.581 knots on a one hour's full power trial was obtained, the fastest runs being at the rate of 37.113 knots, and the fastest pair of runs 36.869 mean, the mean revolutions per minute being 1,180, and the mean air pressure 4½ inches. The speed of 37.113 knots, or nearly 43 statute miles, represents about 12,300 i. h. p. in a vessel of 370 tons displacement, as compared with 6,000 to 6,500 developed in the 30-knot destroyers of similar dimensions and 310 tons displacement. At all speeds there was an almost complete absence of vibration. Her guaranteed speed astern of 15½ knots has been easily enough realized. The Viper has passed all her official trials, and has fulfilled all the guarantees of her contract. As regards speed she has exceeded the 31 knots guaranteed by over five knots, and as regards the guarantee of 25 lbs. of coal per i. h. p. at 31 knots she easily obtained a consumption of 2.38 lbs. No guarantees of coal consumption at reduced speed have been asked for in the case of any of the 30-knot, 32-knot, or 33-knot destroyers built for the British Admiralty, and no guarantee was asked for in this respect for the Viper. In the design of the Viper it was the aim of the Parsons Marine Steam Turbine Co. to build a vessel of maximum speed under the usual Admiralty conditions and guarantees. In future vessels of this class provisions will be made to give an economy at cruising speeds of 12 to 15 knots superior to any existing at present in 30 or 31-knot destroyers with reciprocating engines, while at the same time it is anticipated that in the same vessels the present record of 36.58 mean speed will be surpassed, and that the consumption of coal at the highest speeds will be very much lower than that of the Viper. It is not, of course, suggested that speeds above 35-knots should be constantly run on service, but provided that ample fan power, and ample down-come area in the boilers, and ample margins of strength and power in the main and auxiliary machinery are allowed, such high speeds can be safely relied upon as being available in the emergencies of war, with the ordinary service staff. By far the most serious element of uncertainty in the running of fast vessels with small tube express boilers arises, in my opinion, from salt water leakage into the condensers, which soon sets up priming and necessitates a reduction of speed to enable the water levels in the boilers to be clearly seen. If salt water leakage could be entirely prevented, then, in my opinion, it would be almost as easy and reliable to run for three or four hours at high speeds as at moderate speeds. The Cobra, built by W. G. Armstrong, Whitworth & Co., at about the same time as the Viper, has, after exhaustive trials, been purchased by the British Admiralty. She is a somewhat larger vessel with duplicate machinery to the Viper, and is now the second fastest vessel afloat. The British Admiralty now own the only two turbine-propelled ships which have been built under specification.

The arrangement of turbine machinery for a channel steamer of 25 knots speed, and about 12,000 indicated horse-power, the revolutions are only 540 on the center and 750 for the outer shafts. Enough has, perhaps, been said to show that the marine steam turbine will be found to be superior, or at least equal, in economy of coal to the reciprocating engine when placed in fast vessels of the mercantile marine; but it may be asked what will be the economy of the turbines when, as in the case of yachts and almost all war vessels, much steaming is done at from one-eighth to one-tenth power the full power being only occasionally used? The answer is a simple one. At cruising speeds the revolutions of the turbines fall well within the limits of speed of small reciprocating engines, and such small engines are then directly

coupled to the main turbines, and the work in conjunction with them, these small triple expansion reciprocating engines taking the steam directly from the boilers and expanding it down to about atmospheric pressure, it then passes to the high-pressure turbine, and thence through the low-pressure turbines to the condensers. When somewhat higher speeds and powers are desired than this arrangement provides, a little boiler steam is admitted to the turbines, and when still higher speeds are required, and the speed of revolution rises beyond that permissible for the reciprocating engines, the stop valve is closed, the coupling opened, and the turbines alone drive the vessel. This combination of machinery permits the full range of expansion of the steam at cruising speeds, and the economy in steam and coal will be superior to that of the best ordinary reciprocating engine at reduced or cruising speeds. In cruisers the horse-power required at cruising speed is between one-fifth and one-eighth of full power; in destroyers between one-eighth and one-twentieth of full power; in yachts it may be any ratio desired by the owner. It should, however, be added that the turbines alone have their full measure of economy from half to full power, and even at one-quarter full power the economy is good. It is only when the cruising speed falls to nearly one-half the full speed, and the horse-power one-eighth of full power, that the economy of the turbines requires some assistance, and such additions are only necessary in vessels such as war vessels and some yachts where much running is done at these very low speeds. They are quite unnecessary in passenger vessels and liners.

The arrangement of turbine machinery for an Atlantic liner of 20,000 to 30,000 i. h. p. presents no features of novelty over the preceding designs, but its simplicity of construction as compared with the present usual reciprocating engine, is more apparent than in the case of smaller vessels. In turbines, to develop the large horse-power required, the internal parts become, comparatively speaking, simpler, and are relatively less costly, and additional refinements of construction can be introduced, which are conducive to higher economics in coal. For a 22-knot liner of 23,000 i. h. p. the speeds of revolution sink to about 300 and 420 on the inner and outer shafts respectively, and the consumption of coal will be less than is at present required for the same displacement and speed. In the case of all the vessels named the reduction of vibration will be very considerable. In conclusion, the principal advantages of the turbine system of propulsion for fast pleasure steamers and passenger steamers of all classes compared with vessels fitted with ordinary engines may be briefly summarized as follows: (1) Increased speed for the same boiler power, due to considerably reduced weight of machinery, and increased economy in steam. (This advantage increasing with higher powers and speeds). (2a) Same speed with reduced boiler power and reduced coal consumption for the same reason as par. 1. (2) Absence of vibration, giving greater comfort to passengers. (3) Increased cabin accommodation due to smaller machinery space. (4) Less upkeep in machinery, and smaller engine room staff. These are a few of the principal advantages which would enable a turbine boat to be a good dividend earner.

FLOTSAM JETSAM AND LAGAN.

William Marlon of Goderich, Ont., is building for the Dominion Fish Co., two tugs, each of 70 feet length, to cost \$5,000. The engines are being built by the Goderich Engine Co.

A special from Toronto says: "There is no truth in the report that we have sold or negotiating to sell our line of steamers to the Clergue syndicate." The authority for the statement is Vice-President J. J. Long, of the Northern Navigation Co.

The new schedule of rates agreed upon by the lumber shovers at Lake Superior ports and the Lumber Carriers' Association is agreeable to all parties. The vesselmen have gained the point after which they were striving, namely, reduction of the charges, and also the assurance that all questions will be submitted to arbitration while the work goes on, thereby preventing any stoppage on the docks that will cause delay. The lumber shovers themselves have been satisfied by the statement that the lumber movement this year will be heavy enough for them to make money even at the reduced wages. The reduction is ten cents on the hour, but even at that they are not getting poor wages. With prospects of a good deal of work to do, fifty cents an hour is considered very good pay.

The Lake Erie Fish Culture Association was organized in Cleveland on Friday last and incorporated under the laws of Ohio. It consists of twenty-six firms and the membership extends from Erie, Pa., to Monroe, Mich. The purpose of the organization is the propagation and culture of fish and the protection of the young fry in Lake Erie, and to secure beneficial legislation for fish interests. Members of the association declare that present conditions threaten the destruction of the fish industry in Lake Erie. From \$1,000,000 to \$2,000,000 is invested in fisheries on Lake Erie and the men claim that the conditions can be improved by the state taking the hatcheries in hand. The eggs of fish caught from time to time should be properly placed in spawn by the state so as to obviate annihilation of the finny tribe in these waters, they say. Some of the fishermen are doing this now but in the absence of the concerted action and intelligent direction the best results not being obtained. These officers were elected: President, E. R. Edson, Sandusky; vice president, A. J. Stoll, Sandusky; secretary, F. W. Alvord, Sandusky.

MELVILLE VERSUS BELLEVILLE.

The London Shipping World and Herald of Commerce does not exactly endorse all that the Engineer in Chief of the Navy has to say regarding the engineering department, tubulous boilers, etc.

In the latest issue received, the Shipping World says:

The chief of the United States Bureau of Steam Navigation has issued his annual report, which certainly is not characterized by any inordinate modesty. Says Admiral Melville, in addressing the Secretary of the United States Navy: "I can assure you that the wonderful immunity from casualty in the engineering department in the vessels of the regular Navy is in a great degree the result of the extraordinary ability exercised in the designing rooms of the Bureau." We need not remind the gallant admiral that there would be no casualties in any engineering department if they could be provided against in our designing-rooms. But, unfortunately, furnace crowns will come down and tubes will burst even in the old tank boilers, and junk rings will split and brasses will seize, spite of all that may be done in the designing-room. But, however that may be, Admiral Melville's department no doubt, deserves "to be congratulated," as he claims, "upon the conservative approval it has given to the change in the boilers of naval ships," though it may here be noted that the American Navy has already six different types of water-tube boilers under trial, while the British Navy has but twelve types under trial. Unfortunately, there are passages in the report which have been seized upon by those who delight to abuse our own admiralty engineers, and they have been misquoted after the manner of such disputants.

Of course, we have as a consequence of the report, seen the announcement in the daily papers, that the Belleville boiler has been condemned in the United States, with the obvious inference that the Belleville has been tried, and found wanting, in the United States Navy. Now, the American Navy, built and building, includes only 17 first-class battleships, 3 armored, and 23 protected cruisers, and in not one of these ships can we find any record of a Belleville boiler having been tried. To the United States a powerful navy is not yet a necessity; to Great Britain a powerful navy is necessary for our very existence. We have an example in our war office of what a "conservative approval" of old methods may lead us to; let us trust no such conservative approval may ever obtain at the Admiralty.

And in his condemnation of the water-tube boiler Admiral Melville is not consistent, for only recently he wrote in a paper read before one of the technical institutions, that had the Spanish ships been fitted with water-tube boilers they would have been able to elude the United States fleet.

Evidently from this the engineer in chief of the United States Navy recognizes, as we all do, the strategic advantages of rapid steam raising. For Admiral Melville to write now that his Department opposed the adoption of the Belleville boiler because of "defective features which in later years have made conspicuous the comparative inefficiency of this type over the purely straight-tube non-screw-joint type, to which I have given continuous and urgent preference," savors rather of being wise after the event. And more especially so when we remember that of the six types of water-tube boilers now on trial in his ships, not all of them are of the type with purely straight non-screw joints to which he states he has given "continuous and urgent preference."

Most of the American ships are fitted, or are to be fitted, with the Babcock and Wilcox boiler, 85 boilers of this type, representing 62,000 indicated horse-power, being constructed or in process of construction for the American Navy; and, be it noted, the Babcock and Wilcox boiler is of American design, and a good design it is too.

That the United States Navy has been in the position to continue to use tank boilers until experience had matured in other countries had no doubt been of great service to it. With us the quick steam raiser became a necessity at a period when we had no time to experiment or wait upon invention. At that period the Belleville was installed, and working satisfactorily in the French Navy, and we adopted it.

The danger of a waiting policy meant much to us, but to America the delay of a year or two in boiling her ships means little or anything; they could afford to wait, we could not. On the whole question of boilers we are content to wait the report of the boiler committee, sure as we are in the knowledge that there is no finality in engineering, and that the water-tube boiler of to-day will be supplanted long before the vessels in which they are placed have run their course.

MICHIGAN VESSEL TAXES.

Senator Kelly has introduced the following concurrent resolution before the legislature at Lansing, Mich:

Whereas, the question of the taxation of vessel property in this state is one of vital importance to the people of Michigan; and

Whereas, there is a bill pending before the Senate changing the system from an ad valorem to a specific system by a special tax on tonnage, and

Whereas, the states of Wisconsin and Minnesota have each appointed a commission to consider the subject in the near future, and have asked Michigan to co-operate with them and agree, if possible, in a uniform way of taxation for this class of property and report to the legislatures of their respective states; therefore be it

Resolved, by the Senate, the House concurring, that a committee of three be appointed by the speaker of the house to constitute a commission to act with the commissions of Wisconsin and Minnesota as outlined, and report at the earliest date to this legislature, and

Resolved, further, that the committee be entitled to the usual expenses allowed other committees for the work to be carried out.

Vesselmen are taking much interest in the matter and welcome a uniform law in the three states as well as others. A bill is now pending before the Wisconsin legislature providing for a specific tax of one cent on the net registered tonnage. In Minnesota the tax is three cents a ton gross and Senator Kelly has fixed the same tax in his bill.

MONTHLY SHIPBUILDING RETURNS.

TREASURY DEPARTMENT,
OFFICE OF THE COMMISSIONER OF NAVIGATION,
WASHINGTON, D. C., February 28, 1901.

The Bureau of Navigation reports 40 vessels of 12,080 gross tons were built in the United States and officially numbered during the month of February, 1901, as follows:

	WOOD				STEEL				TOTAL	
	SAIL		STEAM		SAIL		STEAM			
	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross
Atlantic & Gulf	17	2,138	8	329	1	1,120	2	1,854	28	5,441
Pacific.....	4	3,457	5	1,324	.....	.....	.....	.....	9	4,781
Great Lakes..	.....	.....	1	1,736	.....	.....	.....	.....	1	1,736
West'n Rivers	1	24	1	98	.....	.....	.....	.....	2	122
Total.....	22	5,619	15	3,487	1	1,120	2	1,854	40	12,080

The largest steel grain vessel included in these figures is West Point, 1,328 gross tons, built at Newburg, N. Y., to the order of the Central & Harlem River Railroad Co.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	3,034,000	.....	.....	39,000	740,000
" afloat.....	1,014,000	.....	.....	.....	.....
Chicago.....	11,304,000	4,023,000	3,132,000	556,000	253,000
" afloat.....	57,000	1,855,000	1,204,000	1,000	.....
Detroit.....	429,000	531,000	2,000	37,000	27,000
Duluth.....	7,721,000	4,267,000	1,017,000	310,000	75,000
Fort William, Ont..	1,473,000	.....	.....	.....	.....
Milwaukee.....	1,047,000	665,000	777,000	1,000	27,000
" afloat.....	.....	128,000	322,000	.....	72,000
Montreal.....	95,000	12,000	161,000	9,000	43,000
Port Arthur, Ont....	244,000	.....	.....	.....	.....
Toledo.....	570,000	1,966,000	281,000	9,000	.....
Toronto.....	77,000	.....	4,000	.....	8,000
Grand Total.....	57,234,000	19,764,000	10,550,000	1,163,000	1,530,000
Corresponding Date, 1899.....	54,084,000	19,666,000	6,058,000	1,176,000	1,250,000
Increase.....	.....	1,546,000	.....	7,000	.....
Decrease.....	302,000	.....	17,000	.....	120,000

While the stock of grain at lake ports only is here given the total shows the figures for the entire country except the Pacific Slope.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT HOUSE INSPECTOR,
NINTH DISTRICT, CHICAGO, ILL., March 5th, 1901.
RACINE REEF BEACON LIGHT.

Notice is hereby given that the Racine Reef beacon light, Lake Michigan, off Racine, Wisconsin, has been discontinued for the present.

Notice will be issued when the light is re-established.

By order of the Light-House Board.

F. M. SYMONDS, Commander, U. S. Navy,
Inspector 9th L. H. District.

COLUMBIA YACHT CLUB—OFFICERS ELECTED.

The annual election of officers of the Columbia Yacht club, Chicago, was held in the club house, at the foot of Randolph street, on Saturday last.

The Columbia is the largest and most influential yacht club on the lakes, it has now nearly 300 members and 80 enrolled yachts. The club-house, which will be entirely completed this year, and the new private yacht harbor held under a government permit of occupancy, cost the club about \$20,000.

The annual election of officers was what might be termed a rather spirited meeting, but the members balloted right when they elected F. H. Osborn, Esq., their commodore. Mr. Osborn, is, first, an enthusiastic yachtsman, he is also a vessel owner and marine insurance agent, with a large acquaintance in marine circles, and a gentleman who fully realizes the distinction conferred upon him by the members of the Columbia, furthermore, with the hearty assistance of his colleagues in office, Commodore Osborn is bound to make his term a successful one.

The new commodore is to be congratulated, inasmuch as his election was declared a unanimous choice. Mr. Henry Aronson was elected vice-commodore on securing 91 votes.

The contest for the office of rear commodore between the candidates of the regular ticket, the members' ticket by petition, the members' independent ticket by petition, and the independent ticket was decidedly close, F. A. R. Moore finally carrying off the honor with 48 votes, against 36 for Worst and L. C. Van Riper. When the result of the election was announced the clubhouse rang with a tumult of applause, the elected ticket seeming to have the hearty indorsement of the majority of the members.

Speeches were called for by the chairmen of the election committee and the members. Commodore-elect F. H. Osborn responded in an informal way, thanking the club for the honor they had bestowed on him. He said he hoped he would be able to fill his high position in a manner that would meet the approval of the club. When Mr. Osborn had concluded the crowd gave three cheers for the new commodore.

Henry Aronson, vice-commodore elect, was next called upon for a speech, and responded in an appropriate manner.

The election committee was composed of Dr. F. W. Holmes, E. H. Younglove and Griffith Baker.

Following are the officers elected:

Commodore, F. H. Osborn; vice-commodore, H. Aronson; rear commodore, F. A. R. Moore; secretary H. P. Simonton; treasurer, W. H. Quinlan; house committee, F. D. Porter (chairman), W. A. Merriman, Vernon C. Seaver, C. V. Aspenwall and Horace Clark; regatta committee, Dr. F. H. Skinner, E. T. Balcom, W. S. Bougher, A. R. Moulton, Si Mayor; finance committee, J. A. Davis (chairman), C. H. Morgan and George A. Fargher; delegate to Lake Michigan Yachting Association, E. T. Balcom; historian, C. O. Andrews; measurer, A. W. Young.

OFFICERS APPOINTED.

The Executive Committee of the directors of the Richelieu & Ontario Navigation Co. appointed officers to their boats as follows:

Steamer Quebec—Captain, L. O. Boucher; purser, L. Gorman; pilot, F. F. Hamelin; first mate, Charles Rocrais; engineer, F. Gendron.

Steamer Montreal—Captain, Louis St. Louis; pilot, E. Bouille; first mate, P. Kana; engineer, F. X. Hamelin.

Steamer Toronto—Captain, Harry Grange; purser, H. Dubois; chief engineer, W. Black.

Steamer Bohemian—Captain A. Dunlop; purser, H. Nimo; first mate, J. Carway; engineer, Gendron.

Steamer Caspian—Captain, J. Magrath; purser, A. C. Neish; engineer, N. Beaudern; first mate, M. Stickney; second mate, T. Kees.

Steamer Algerian—Captain, D. Mills; purser J. Sparks; first mate, W. S. McPhee; engineer, William Parker.

Steamer Hamilton—Captain, Andrew J. Parker; sailing master, J. Stephenson; pilot, Joseph Jean; mate, T. Vincent, engineer, R. Marshall.

Steamer Kingston—Captain, Henry Esford; purser, J. B. Tinning; engineer, A. R. Milner. This is the new steamer launched in February last.

THE H. H. Johns Mfg. Co., New York, announce that they have placed upon the market a finish for wood work known as "Lustral." It is recommended either for interior or exterior finish, and is an excellent preservative for both wood and metal.

LIFE SAVING STATIONS IN CANADIAN WATERS.

To the Editor of the Marine Record.

I notice in the MARINE RECORD of the 21st ult., that it is the intention of the Canadian government to place a life-saving station at Point au Pelee, Lake Erie. Now, Mr. Editor, do you candidly think that it is possible for the Canadian government to do such a thing?

For the past thirty years our government has been asked by mariners to place a paid crew at several dangerous places, not only on Lake Erie, but also at other points. Petition after petition has been sent to Ottawa by the mariners of Canada asking that stations be placed at proper places, but the only reply was the placing of a boat to be manned by a volunteer crew. What is the result? Someone is placed in charge, be he seaman or not, it makes no difference, and he, the keeper, receives the large sum of \$75 per year for so doing.

Now, do you think it is possible to expect a good mariner to stay ashore and take interest in the work for that paltry sum, unless he has a private income and is one who feels for another's woes and is ever ready to assist his fellowman, no matter in what danger he may be placed. I urge once more for the government to place stations at once at all the dangerous places on the lakes and pay the crews the same as the United States life-saving service pays, and there are plenty of good efficient men in Canada ready to take all risks at such work.

I would further suggest that the Lake Carriers' Association make further representations to the Canadian parliament, now in session, to place a few more stations. Thanking you for space in the RECORD and trusting that you will also assist this much needed cause, as you have always done before.

Yours truly,

BOATSWAIN.

The plea of our correspondent for more Canadian life-saving stations is a pertinent one, but, and there is generally a but to it, there is another side to the question. It should be remembered that the Dominion of Canada is a small country, industrially so and in point of population, not otherwise. Paid life-saving stations on the lakes means the same throughout the provinces from east to west. The annual outlay for the up-keep of this department in the United States now exceeds \$1,500,000, and new stations are being added each year as commerce wanes, while others are falling into disuse. However, 1½ millions of dollars, no doubt, looms up large before the Ottawa officials, and the departure requires a second thought, yes, several of them before they commit their government to so large an annual outlay. The general trend of the sentiment entertained at Ottawa may be conveyed by a perusal of the following clipping, which has been forwarded to the RECORD:

"Capt. Donnelly, who returned home this morning, joined the marine delegation at Ottawa, and assisted in putting the requests of the mariners before the government. The captain speaks in the highest terms of the reception the mariners and their friends met with. He states that they feel themselves under deep obligations to Hon. Mr. Fitzpatrick, Solicitor General, Senator Casgrain, Col. Gourdeau, Deputy Minister of Marine, and Col. Anderson, Chief Engineer of the Marine Department. The delegation was accompanied by W. J. White, K. C., Montreal. Hon. Mr. Fitzpatrick went into the legal points concerned in the requests and explained the matter very fully and patiently to the delegation. The Deputy Minister of Marine, Col. Gourdeau, stated that the government was fully alive to the necessity of having the rules of the road uniform and the needs and aids to navigation, and pointed out how much had been done by the government in past years, and how eager Hon. Mr. Davies was to ascertain the exact requirements of the navigation interests, and the minister's willingness to meet these as far as the resources of the country will allow. The chief engineer of the marine department, Col. Anderson, had all the matters at his finger ends, and was able to explain very fully to the department the different points at issue. The delegates believe that the government and its officers will do all in their power to assist them. Senator Casgrain has taken a very deep interest in marine matters, and is well informed as to the requirements of the St. Lawrence river, especially below Montreal."

Passing over the uniform courtesy with which this delegation was received, and the thorough knowledge which the prominent officials evinced regarding the additional aids to navigation, etc., the keynote of the situation was sounded when the Minister of Marine stated, through Col. Gourdeau, a willingness to meet exact requirements as far as the resources of the country would allow. Up to this point, Canada has done nobly by her waterways in relation to general commerce. Yet, we recognize that there are several departments, disbursing several millions of dollars annually in the United States, which Canada cannot afford to intro-

duce in her system of government at the present time, be the Minister of Marine never so willing to meet the popular demands and in a measure absolute requirements of service coming more particularly under his jurisdiction.

CONNERS' MONTREAL ELEVATORS.

Unless the members of the Conners syndicate pursue a different policy from that which they have adopted since receiving the contract for building elevators and storage warehouses, the agreement which they now hold with the Montreal harbor commissioners will be repudiated by the latter body, and then the Conners people will be compelled to look alive if they wish to save any part of the \$50,000 which is now deposited for the faithful performance of the contract.

This was the attitude of the commissioners at the meeting held on Monday morning, and particularly after the report of Mr. John Kennedy, the chief harbor engineer. Mr. Kennedy's report is in compliance with a resolution passed at the meeting of the Harbor Board a week ago. The chief engineer, after reviewing the facts pertaining to the contract, which are already well known, went on to state that in his judgment the work had not proceeded with the speed which he thought could be expected under the circumstances.

THE CANADA'S CUP.

It is announced that the Royal Canadian Yacht Club will only build one boat to substantiate their challenge for Canada's cup, and there is considerable disappointment among Toronto yachtsmen, many of whom say that it seems akin to folly to depend upon one boat to defeat the pick of five boats from the boards of the best designers of small boats, barring the Herreshoffs, the United States can produce.

The committee in charge of the matter, however, are so well satisfied that the design they selected will produce a boat so much superior to either Beaver or Minota, that they have decided to build only one challenger. Only two designs were considered by the committee, that by Mr. H. C. McLeod, designer of Minota, and the prints of Sibbick, the Solent expert. The English designed craft will be constructed, and Capt. Andrews of Oakville is already in possession of the lines.

"She will be a grand boat," said Commodore Gooderham. "I am confident that the Sibbick boat will have no difficulty in defeating either Beaver or Minota."

"So far as I am able to judge, she is a good deal after the style of the Crowninshield defender, the Illinois, the Pynchon Chicago syndicate craft. She is of much lighter displacement than the Beaver and is more of an extreme fin keel. She has the full body of a center-boarder."

Mr. Gooderham is now at work drafting a sloop rig for the new craft.

LAUNCH OF THE VENUS.

The steel freight steamer Venus, built to the order of J. C. Gilchrist and others, was successfully launched from the Lorain yards of the American Ship Building Co. on Thursday last.

The Venus is the third of a fleet of eight steel steamers which will be built by the American Ship Building Co. for the same owners, five of which, it is understood, are to be constructed at Lorain.

The christening ceremony was gracefully performed by Miss Mabel Hart, daughter of Mr. Frank Hart, one of the shareholders in the firm of owners. Accompanying Miss Hart on the christening platform were Mrs. F. Hart, Miss Edith Selover, Messrs. Joseph A. Gilchrist, Bart Tucker, Ralph Thayer, William Gibberst, J. Taylor, J. D. Mitchell, L. Woodruff, chief engineer of the Gilchrist fleet, and W. L. Wetmore, secretary and treasurer of the shipbuilding company.

The Venus has been just eight weeks on the stocks. Her general dimensions are 366 feet long, 48 feet beam and 28 feet molded depth. The fleet is to be of sister ships and will be equipped with all modern improvements for the handling of ships and cargo, as well as the comfort and convenience of her crew.

ACCORDING to Acting Consul General Westmacott, London, England, there is a demand for coal handling machinery in Ireland. He writes as follows: "I am in receipt of an inquiry for names of American firms supplying machinery and appliances for the mechanical discharge of coal from ships. Any firm wishing to communicate on this subject should address the secretary of the Londonderry Port and Harbor, Londonderry, Ireland."

SUCCESSFUL TEST OF OIL-FUEL APPARATUS.

Recently the steamship Khodoung, a petroleum tank steamer which has been built by Sir W. G. Armstrong, Whitworth & Co., limited, for the Burmah Oil Co., of Rangoon, went out to sea from the Tyne for a trial of her machinery and the oil-fuel apparatus and burners. This vessel is intended for the transport in bulk of Burmah petroleum or kerosene from Rangoon to Calcutta, and all arrangements have been designed to meet these requirements. The Burmah Oil Co., has extensive oil fields and wells in Burmah. Its refinery alone, near Rangoon, employs a great number of men in the production of what is known as Oriental kerosene, bazaar oil, jute oil, and other products derived from the distillation of Burmah petroleum oil. The steamers and boilers belonging to the company use entirely for the generation of steam what is described in the East as "earth oil fuel refuse." It is at low temperatures, of the consistency of lard, and steam coils are required to keep it in the liquid form when employed in regions of low temperature. It has a very high flash point, which, it is stated, is considerably above 200 degrees Fahrenheit. The machinery, which has been constructed by the Wallsend Slipway and Engineering Co., is of the triple expansion type and of the newest design, having three cylinders, 19 inches, 31 inches and 51 inches in diameter, with a stroke of 36 inches, and is placed, as is usual with oil-tank steamers, at the after end of the vessel. Steam is supplied by two single-ended boilers, working at a pressure of 180 pounds per square inch. An extra large boiler is also fitted for auxiliary purposes. All the boilers both main and auxiliary, have been designed to burn Burmah oil-fuel refuse with Orde's burners. The oil-fuel bunkers form part of the vessel and have been very strongly built, and the arrangements generally are of a complete and satisfactory nature. The oil fuel burners, which are in duplicate to each furnace, and the arrangements in connection with the installation, have been designed by Mr. Orde, who is connected with Sir W. G. Armstrong, Whitworth & Co. During the trial, all the oil apparatus worked in a very satisfactory manner.

The point of interest of the trial was that this was the first occasion in England of Burmah oil-fuel refuse being used for the generation of steam. A number of vessels have now been fitted on the Tyne for burning oil fuel, and there is every reason to believe that in the near future oil fuel will be more largely used; it appears only a question of time and arrangement. We have only to add that the machinery during the trial worked admirably.—The Engineer, London.

COLLISION CASE DECIDED.

The Martha-Wilbur-Troy collision case before Judge Swan of Detroit, was decided on Saturday, the Troy being dismissed from the action and the Wilbur and Mariposa being held equally responsible and the damages divided between them.

The total amount involved was \$78,000, of which the Minnesota Steamship Co., owners of the Mariposa and Martha, claimed \$55,000 and the Wilbur \$23,000. It will be remembered that the Troy and the Wilbur were supposed to be racing at the time of the accident and that the suction by closeness of the vessels running at a high rate of speed caused the Wilbur to shiver and cut down the barge Martha.

In rendering his decision Judge Swan said the testimony did not prove that the two freighters were racing, although he had no doubt in his mind that the Wilbur would have been glad to pass the Troy, which was slightly in the lead. The Mariposa which had the Martha in tow, was liable, for the testimony had shown that she was on the range in the center of the channel at the time she blew her passing signal and did not go enough to the westward of the center of the channel to allow her tow any room to get clear of the Wilbur when she made her sheer.

LAUNCH OF A TORPEDO BOAT DESTROYER

At the shipbuilding plant of the Union Iron Works, San Francisco, on Saturday last, the torpedo boat destroyer Preble was successfully launched.

The Preble, as she was named, is one of the sixteen torpedo boat destroyers ordered by the government two years ago, and is the second one built in San Francisco.

The boat has a length on the water line of 245 feet, a maximum beam of 23 feet, and will draw upon the trial displacement 420 tons, and have an immersion of eight feet of water over the tips of her two screws. With 330 revolutions a minute the engines will develop a speed of 30 knots. The armament of the Preble consists of two 3-inch rapid fire guns, five 6-pounders and two 18-inch torpedo tubes.

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CLEVELAND, O., MARCH 7, 1901.

OH that deplorable personality that drove itself into the River and Harbor Bill. We all talk too d— much anyway.

THE appropriation for the river and harbor bill, which unfortunately was not appropriated, was just about the sum that it would take to open up a 14 foot waterway to the Hudson, through York State.

IT is to be hoped that the Treasury Department will take some notice of signal and heroic acts of bravery in saving life on the lakes this season and signify same by awarding the medals authorized by act of Congress.

THE thanks of the RECORD are due Hon. Sumner I. Kimball, General Superintendent U. S. Life Saving Service, for a copy of his annual report to the Secretary of the Treasury for the fiscal year ended June 30, 1900.

UNIONS, clubs and associations are springing up every season. Incidental to the mushroom growth of these orders, secret, technical, labor, or otherwise, we find no provision made for the aged, infirm or incapacitated members.

THERE is quite a difference between insubordination, refusing duty, and mutiny on shipboard. Each offense is a clearly defined infraction of the laws and ought not to be carelessly mixed in writing, talking, incurring liability or making charges.

NAVAL reserve veterans of the Spanish American war sounds large, but there were no veterans made in that brief conflict. Veterans have had a chance to smell powder also h—ll, at least fire and brimstone. When it comes to naming or making naval reserve veterans, let's quit.

At last people are beginning to realize that the lakes are simply vast basins or receptacles receiving the overflow from the watershed of the immediate and adjacent country, and, therefore, susceptible of being diminished in supply according to the volume and frequency of a withdrawal.

SOMEONE ought to ask Senators from the wild and woolly West what connection there is between extensive irrigation schemes in the arid regions of the illimitable and the conservancy and improvement of rivers and harbors? People growing up with the country are perhaps more conversant with agriculture than anything else, and, therefore, they ought to have sought the good graces of the Department of Agriculture in an endeavor to work their scheme for reclaiming land through Congress, instead of tacking their measure on to the river and harbor bill under the guise of marine work.

THE RIVER AND HARBOR BILL.

The River and Harbor Bill was killed in the Senate by being talked to death during the last few hours of Congress.

It is now of no avail to reason out the causes leading to this result. The fact remains that a multitude of essential improvements have been denied the country by the country's representatives.

The fate of the bill will retard progress on the lakes to a greater extent than in any other part of the country, at least we are prone to think so and candidly believe. There was the plan of Congressman Corliss to investigate the matter of Lake Erie levels and if thought advisable construct dams at the east end of the lake, and, in that vicinity, no less a sum than \$1,107,000 was denied for improvements, \$257,000 of which was to have been expended on Niagara river and \$600,000 for the Erie basin and Black Rock harbor improvement; \$50,000 for maintenance, and an appropriation of \$200,000 in the Sundry Civil Bill, which was contingent on the passage of the River and Harbor Bill.

As a question of equity and justice, we do not desire to see the Federal Government spending the people's money in boulevarding a water front, or, in a word, bettering a locality at the expense of the country, yet, when such measures are held over as the proposed double channel at the St. Clair Flats; deepening of the Lime Kiln Crossing; digging of the West Neebish Channel in Ste. Marie's river, and the straightening of the channel at the Sailors' Encampment, where several vessels have been sunk and navigation totally suspended for days at a time, also other contemplated improvements in the Ste. Marie's river, when, as we have said, general improvements of this sort are denied, it is not for the best interests of the nation's commercial welfare.

Of course, some appropriations in the bill, were no doubt placed there just to be wiped out, but, if ever the chairman of a River and Harbor Committee tried to do his whole duty to his constituency and the country at large, that credit must be given to the Hon. T. E. Burton, of Ohio, and, despite the failure of the bill, Mr. Burton's effort deserved success. The opponents of the bill, which carried in round figures, \$50,000,000, talked about there being some "pork in the barrel," why of course there was, thousands from Maine to California expected to gather a few crumbs from the expenditures, others calculated on taking a lick at some gilded gingerbread, nothing so small as Johnny cake; however, there is another Congress coming when there will be no inauguration festivities to interfere with the leisure devoted to a discussion of minor details in a river and harbor bill, moreover, there will be no Senator Thos. H. Carter required to rest his jaws after wagging for a thirteen hour stretch in opposition to the passage of the bill, for Mr. Carter will recuperate by rusticating in Montana during the next session of Congress. So much may be said, however, if it had not have been Senator Carter there would have been some other honorable member of the Senate who would have held the bill over, according to the instructions and workings of the powers that be.

BETWEEN WIND AND WATER.

Whatever use in the way of power plants may be made of the volume of water flowing toward Niagara, it is self-evident that the total flow ultimately reaches Lake Ontario. In the same manner, and precisely under similar conditions are the waters of Lake Superior canalized and used for the power plants at Sault Ste. Marie, with the clear understanding that a vast quantity more will be consumed in the near future.

The RECORD has persistently drawn attention to the international importance of maintaining lake levels, and we have been consistent in stating that a large volume of waste water, or water actually and permanently withdrawn from the lakes, such, for instance, as is required for the maximum flow through the Chicago drainage canal, must diminish to that extent the original body, and eventually show a consequent reduction of surface levels, irrespective of all other conditions. Such is the plain simple way of stating that it is possible to use a greater quantity than the supply warrants or provides. It is tersely and well put, when it is said that precipitation alone rules the level of the lakes, and any excessive artificial drafts made on this natural supply must surely lower the surfaces of the several basins.

Shorn of all hydraulic technicalities, the subject simply resolves itself into a question of the predominance of waste and supply, should the former exceed the latter, the result is positive, and will soon make itself apparent.

Congress has given the President authority to appoint a

commission to join a Canadian body of experts, to determine the best means of maintaining the ordinary, or mean level of the lakes. In a discussion of this matter at Toronto last week, it was stated that: Lake Erie ports on both sides of the border line are threatened with great loss through damage by lowering the level of the lake, Niagara river drawing off great quantities of water to furnish electric energy. It was shown at a meeting of the Ontario Surveyors' Association that the supply was drawn from the Great Lakes, including an area of 150 000 square miles. It was suggested that the capacity of Niagara river be increased by widening and deepening its bed for certain distances, or by raising the water in the lake above the river bed. A dam at Black Rock harbor, near Buffalo, and a channel were proposed, the dam to have a total length of 2,810 feet, with a suitable channel, the cost of the channel to be \$1,600,000, and the cost of the dam \$800,000. In discussion it was shown that by damming in this manner the level of Lake Ontario would be lowered, which would involve much expense in deepening the harbors of the cities along the line, and this is where they get between wind and water, also in a quandary as to which lake it is best to favor, still there is an immense flow of water over Niagara Falls.

The Ontario Surveyors' Association, as well as the Canadian international commission, when appointed, should begin their investigation at Sault Ste. Marie, where it is publicly admitted that it is the intention to absorb the entire outflow from Lake Superior, and that extensive remedial works will be placed in the Falls, the natural outlet for the overflow, as Niagara is for Lake Erie, though why it should be announced that remedial works will be placed at the point of total absorption is beyond our comprehension. In other words, if the power canals on either side of St. Mary's Falls are to divert the water now passing over the Falls, what is the use of anchoring cribs to dry rocks? The key to the situation, no doubt, rests in the depth of the upper ends of these canals, and, if dredged deep enough, a trifle more than ever passed over the Falls of St. Mary will be absorbed, or extracted from the surface level of Lake Superior; every point of which, however, would re-enter St. Mary's river, and temporarily increase the volume on Lakes Michigan and Huron at the expense of Superior. We opine that this feature alone will, in a great measure, counteract the waste water used for the Chicago drainage canal; at least it will be amply sufficient to befog the people watching for a lowering of Lake Michigan on account of the opening of the upper Mississippi feeder. For, while each lake is an important factor in furnishing its own supply, the waters of Lake Superior traverses the St. Lawrence river and mingles with the waters of the Gulf, hence, the more reason why the Dominion government, to conserve the fourteen-foot waterway to the coast which has just been given the commercial and transportation interest of the lakes should appoint its international commission on lake levels forthwith.

HANDLING ROW-BOATS—BEACHING IN SURF.

In the instruction to mariners in case of shipwreck occurring in the neighborhood of a life-saving station, the crew are particularly cautioned to remain on board until assistance arrives, and they are further told, that under no circumstance should they attempt to land through the surf in their own boats until the last hope of assistance from the shore had vanished.

It is generally known that when it is comparatively smooth with a little offing, a dangerous surf may be running and not be perceptible a few hundred yards off shore, besides, the surf viewed from seaward, never appears so dangerous as it actually is, furthermore, it has been amply demonstrated, that many lives have been unnecessarily lost by the occupants of row boats being thus deceived in attempting to make a landing.

The foregoing is cut and dried as it were, known to the veriest novice on shipboard, and is the old song wherever English is spoken, so where there is any pretence made at keeping up a life-saving service of any description, moreover, it is all gospel truth, shipshape and according to Gunter. The big boat is the best boat to hang on to, and this, too, up to the point of an only alternative, viz., total and final abandonment.

Now, in the case of being compelled to leave a vessel on account of fire, collision, or damage by the elements, etc., if in the vicinity of land, and it is such as the small boats can or dare approach, there is going to be a landing made (and perhaps not in the choicest sort of weather either) even at the risk of loss of life, and this, too, after the usual precau-

tions have been observed, such as coasting along to find an inlet, beach, low lying, smooth, or soft place of any description to poke into.

Having now brought our boat or boats to a point of landing, whether sloping, steep-to or actually among surf and breakers, the question remains as to the best way of beaching, or in any way getting the occupants thereof on *terra firma* in daylight or darkness, under oars or canvas, and there are different best ways of accomplishing this work successfully, according to the existing conditions.

Our object in thus placing this subject in its present form, is to elicit an expression of opinion from a majority of the nearly 300 keepers of life-saving stations established in this country, although we would be well satisfied and pleased to see the question discussed on the other side of the Atlantic as well, and the best custom observed by the several nationalities duly published for the edification of an international marine community. However, not to saddle others with what can be determined by ourselves, we herewith make the suggestion, that the Hon. Sumner I. Kimball, General Superintendent of the U. S. Life-Saving Service, take such measures as will acquaint the mercantile marine with the best methods of handling an open row-boat, of any form, in a seaway, beaching in a surf, running in upon a steep beach, landing upon a rock-bound coast, or, and, under the varying conditions and circumstances liable to take place at any time, day or day, when there is no shore assistance at hand, nor likely to be any.

The general superintendent, or chief, who is also the originator and the sire of the service, has now twelve district superintendents under his jurisdiction, all practical, skilled and talented men along this particular line of work, men who could take the collective views of the 280 keepers and sift out the wheat from the chaff, determine, if on a gradually shoaling beach, it is best to send a square stern boat in bow first or back her in through the surf stern first from a sea anchor, with special reference as to handling the oars and the trim of the boat. If a steep beach, whether canvas ought to be kept on her or she be allowed to roll in and ground broadside on the last or second last breaker, etc.

Space forbids us treating further on this subject at the present, further than to say that this is a wide, worthy and fruitful field for official investigation to spend itself upon, the results might be published in pamphlet form, or occupy one or more chapters in the otherwise dry statistical reading of an annual report, such information would be found of incalculable benefit to the world maritime.

The Hon. Sumner I. Kimball can accomplish this humanitarian feature in its entirety, if he will, and as a crowning laurel to his life-long efforts towards perfecting universal life-saving methods. We may now look to him to take the initiative and exhaust the subject from Dan to Beersheba, according to the several complexions of their variable coast lines.

THE Weather Bureau is beginning to tell us something about "atmospheric precipitation and lake levels," atmospheric precipitation is good, wonder what they expect, subterranean or submarine, though things generally do fall down instead of up, a habit they have, we suppose; however, the implied statement that Lake Superior rules the level of the lakes, is what we most fiercely object to in this chapter on precipitation and surface levels. For instance, we are told that "The oscillations in Lakes Michigan and Huron follow in general those of Lake Superior," when, and for how long, and under what conditions? Is the Lake Superior Power Canal Co. to control the sluiceway through the Chicago river at the head of Lake Michigan and the rapids of the St. Clair river at Port Huron? A lot of water flows over the Sault Ste. Marie Falls, there is also considerable of a drain on the supply at Niagara, cause and effect as it were. Now let the Washington professors watch closely the Lake Superior atmospheric precipitation, boss Mr. Clergue at the "Soo" and control the power ducts at Niagara, and they will no doubt have the key to the whole situation.

THE life saving service of the British Isles is chiefly supported by voluntary contributions from the people residing in the vicinity of the station, or mainly so. Acting upon this precedent, or so it would appear, the Dominion government also expects each locality to care for itself. There is not a properly prepared, equipped and paid life saving station and crew in Canada. It would be an excellent departure to establish about half a dozen paid stations at isolated points on the lakes, or, say two on each lake, making eight in all.

A THREE-MASTED square-rigged vessel is a ship. The North German Lloyd cadet training ship Herzogin Sophie Charlotte is such a craft, carrying fore and main skysails over double topsail and top gallantsails, with the addition of a jigger mast. Our New York contemporary, the American Shipbuilder, makes her a four-masted bark. The Marine Journal goes a shade better in coining the word shipentine, something after the old style brigantine, we presume, or jackass brig, if you will. Now, to come back to our first flat-footed remark that a three-masted, square-rigged vessel is a ship. So also, is anything with two masts fore and aft rigged, a schooner. Give her another spar or two or three more, and she is still a fore and aft schooner, designated by the number of masts. So also with a ship, once get her square rigged on three spars and you can't get her back to being bark rigged. Steamers may also be particularized in a similar manner, as for instance, a schooner, brig, bark or ship-rigged steamboat, and as such they are reported from signal and telegraph stations. Hew to the line, gentlemen, and don't try to get us into a fog on these terms.

WE have been told that "turn and turn about is fairplay," whether this is so or not, we find that a score or so of years ago, schooner sailors made their own wages and their union proclaimed the rate at all lake ports. Next we find the owners formulating a scale of wages, and later, grading the value of services according to the class of tonnage. This season, the engineers, or those following the lakes for a living during the season of navigation, take the initiative and issue a sliding scale of wages to apply on all classes of tonnage from tugs and canal boats to what is termed first class steel steamers. It seems almost imperative that the largest lines must, perforce, pay the scale to all members of the Marine Engineers' Beneficial Association, but it is difficult to foretell at what figure the larger number of other screw propelling or side-wheels will be revolved for.

IN the Meteorological Chart of the Lakes for last season the official collaborator at Washington seems to have gone out of his way in stating that, "so far as can be judged by the data at hand, the opening of the Chicago drainage canal has had no appreciable effect on the level of Lake Michigan." Let us say there is practically no adequate data at hand, furthermore, that there are no grounds for a judgment of this sort. A solitary Weather Bureau official can't run counter to the forcibly expressed, warranted and scientific demonstrations of a majority of authorities on this subject. We have not had a full season of maximum flow through the Chicago drainage canal anyway and any attempt to accelerate the minimum has seemed to prove disastrous to shipping in the river. Wait a while professor, no use straining at a gnat.

LET it not be overlooked that we also have an international yacht race on the lakes this summer, sailing ground, Lake Michigan. It is not confidently expected, nor is it already assured, that there will be a large influx of foreign visitors from across the Atlantic, or Pacific, to witness the contest. Notwithstanding this possible lack of oriental or occidental onlookers, the race is going to be a hummer, and, in the words of some old sport, may the best boat win. The sailing rivalry is between the Dominion of Canada and the United States, prize, Canada's Cup, object, to discover the swiftest fresh water wind jammer and her talented builder, Chicago of course gets it, she'd get anything.

A NAVAL court of enquiry, held at Cape Town, S. Africa, has found four of the officers of the British cruiser Sybille responsible for the wrecking of that vessel, which was six miles out of her course. Two of the officers were sentenced to be severely reprimanded and dismissed from the ship, one to forfeit two years' seniority and another six months' seniority. This is casting the drag net with a vengeance. Four officers to be captured on the one casualty is a little out of the ordinary. It is probable that if the Sybille had been under the Stars and Stripes they would all have skinned clear, at least such has been a good deal of our previous experience.

THERE is no use in trying any such tarnation foolishness as mixing oil with water, life's too short to try and swell the volume by the neat process. This is to say, that coast and ocean, or salt and fresh water rules, custom and practice won't assimilate, and the man is a fool for his pains that will try to make them level along on a similar basis.

PORT HURON.

Special Correspondence to The Marine Record.

The steamer Business will undergo repairs to her hull this spring.

Capt. Slyfield will repair his fleet before fitting them out in the spring.

Charles Rattery and John Riggs will sail on the steamer Manhattan.

George McElroy will be on the steamer Maricopa this season as wheelsman.

Capt. James T. Canally, of this city, is fitting out the J. P. Donaldson at Bay City.

C. D. Thompson, of this city, has been elected a director of the Great Lakes Towing Co.

Dan Currie has secured master's papers and now he is known among the boys as Capt. "Daniel" Currie.

Michael Ryan, of Detroit, president of the Licensed Tugmen's Association, is spending a few days in Port Huron.

James Connors has resigned his position as clerk in Kendall's marine reporting office and has accepted one on the steamer Marina.

Policeman James Green will resign his position April 1, and will become second engineer on one of the steamers of the Davidson fleet.

Very few captains of this city have been given their appointments for the season. Capt. James McArthur has been re-appointed to the steamer Italia.

The McLachlan Transportation Company has been organized with a paid up capital of \$125,000 instead of \$52,000 as announced in the newspaper last week.

At least 20 new captains and 20 new engineers have passed a successful examination before the vessel inspectors and have secured the necessary papers for the coming season.

Capt. Granville Boynton, of St. Ignace, was a caller at Port Huron this week. Back in the eighties Mr. Boynton was a compositor on The Times, but is now commander of one of the ice crushers at the Straits of Mackinac.

A pleasant sleighride party was given last Wednesday evening by Capt. Charles Ludwig and Sopher Dewinney to the home of Cope Currie on the Turnpike road. The evening was enjoyably spent in playing cards, after which a dainty lunch was served.

Mayor Moore has signed the contract for the repairs to Military street bridge, but it is just possible at the next meeting of the common council action may be taken to delay the work. If the Jenks Ship Building Company contracts the large vessel as contemplated it will be necessary in a few months to make changes to allow the boat to pass through. Many of the aldermen are in favor of letting the contract for a new bridge which will allow a vessel of any size to pass through the draw.

On Tuesday afternoon, while driving a young horse, Capt. J. P. Harrow was seriously hurt. He was driving near the Rapid Railway track when a car overtook him and his horse became frightened. Captain Harrow jumped from the cutter and attempted to hold the horse by the bridle, but in its terror the animal knocked Captain Harrow to the ground, and then jumped on and kicked him. Three of Captain Harrow's ribs were broken and his head and faced badly injured. He is in a serious condition.

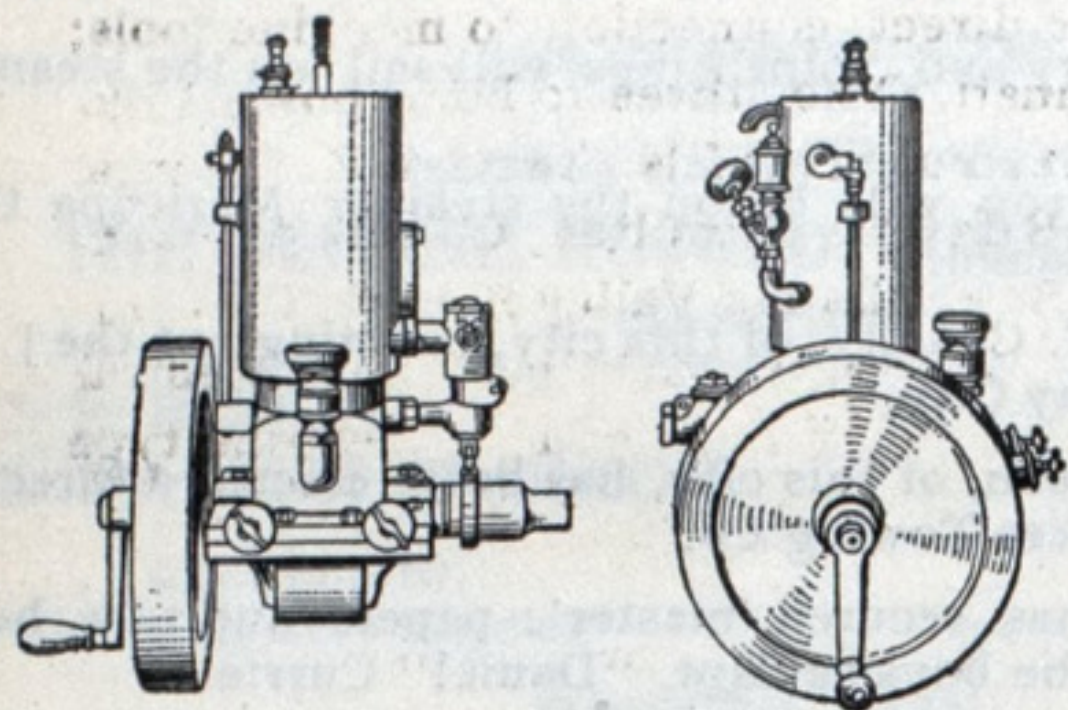
Wilbur Boynton, one of the best known marine engineers of Port Huron, died at his home on Union street early this morning. Mr. Boynton had been sick for the last two weeks, but was not considered dangerous until Sunday last when his physician announced that he was suffering from an acute attack of Bright's disease. He was 36 years of age and leaves a wife. The funeral will be held at Grace church on Thursday afternoon at two o'clock, under the auspices of the Knights Templar. The Masons and marine engineers will also attend.

The problem of the construction of the proposed flushing canal from Lake Huron to Black river is another step nearer solution by the action of the canal commission in determining to recommend to the common council the letting of the contract to the Standard Contracting Co. of Cleveland, over the so-called Lakeside Park route, at a price of \$72,750, exclusive of the right of way. The city has an option on all the private right of way required over this route and if purchased would bring the figure up to about \$87,000, leaving over \$12,000 for contingent and incidental expenses of the authorized \$100,000.

Capt. James Moffat, aged 77 years, a Port Huron pioneer and old-time vesselman, well known all along the chain of lakes, died at his home here last week, as a result of a stroke of paralysis. For over half a century Capt. Moffat had been identified with Port Huron's interests, and in 1851 he started a ferry line between this city and Sarnia, operating a house boat at first. He afterwards built a little boat called the Union, which in 1859 was succeeded by the Sarnia. In 1877 he, with D. N. Runnels, purchased the steamer Beck with for the route, and subsequently built the steamer Omar D. Conger. He had also been interested in other vessel properties, and at one time controlled the Moffat Tug Line. He was connected with the ferry business for forty years. He is survived by two sons, A. N. Moffat, of California, and James Moffat, of Syracuse, N. Y., and one daughter.

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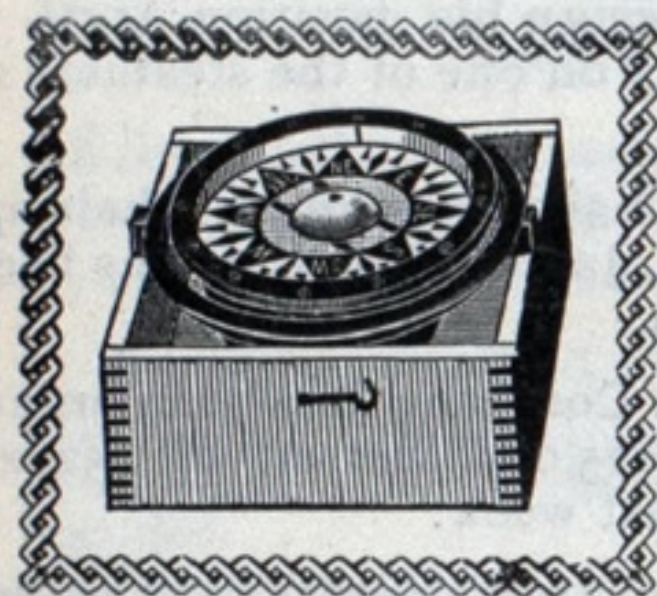
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by ship chandlers generally.

HULL PROPULSION—HERE'S ANOTHER.

Walter Dean, boat builder, Toronto, has under construction a steam yacht which embodies a novel idea. The operation of this boat when launched upon the elements for which it is intended, is being looked to with much interest. The Canadian Manufacturer very naively observes: "Of course, a boat which goes through the water, while at the same time the water goes through it, cannot but be a novelty."

The inventor of this boat Mr. Paul R. Trethewey, of Bracebridge, Ont., is personally superintending the construction of the craft, which he confidently expects will double the speed of any other similar craft propelled in any other way. If he succeeds his fortune is made—there is no doubt about it—for, as he says, the chief drawback to increasing the speed of ocean greyhounds is the fact that to obtain an extra knot of speed above a certain point means such a marked addition to boiler, furnace and coal space as to prohibit the increase, unless space is of no value on the vessel. In fact it now takes one-half the room on a modern ocean flyer to produce speed to propel her in her flight across the ocean.

There is nothing novel about the hull of Mr. Trethewey's boat or his engine. His application of power is unique. The boat is built on the lines of an ordinary launch. She is about twenty-four feet long and of five feet beam. At the bow on either side of the stem, are two holes just below the water-line, and six-inch steel pipes, which run back to the engine, are set in. At the engine the pipes are jointed and run to the stern with a slightly downward dip. Twin screws are worked in the pipes. The idea is that the water will be drawn in at the bow and forced out astern by the screws.

The openings at the bows will do away with the greater portion of the resistance forward, Mr. Trethewey says, while the discharge of the water astern will prevent the drag there, and I calculate that the destruction of these two items of resistance to speed will double the pace of the boat.

The engine with which the craft is equipped is calculated to drive the boat seven miles an hour with an ordinary screw, but the inventor expects that she will go at least fifteen, if not twenty miles an hour, equipped with his device. Mr. Trethewey, in whose brain the idea originated, is about fifty-eight years of age.

PLUGS FOR BOILER TUBES.

A recent foreign abstract published by the Institution of Civil Engineers describes a self-acting plug for the burst tubes of water-tube boilers. On the head of the slender stalk, from two to three times as long as the bore of the tubes in a water-tube boiler with nearly horizontal tubes, is a hemispherical plug, about half as large again as the bore. One of these plugs is provided at each end of the tube. When the stalk is inserted into the tube, the plug hangs down outside, just clear of the orifice; a horizontal rod pre-

vents the plugs from falling further out of a whole row of tubes. If a tube bursts, the rush of water into it carries the plug along with it, and effectually plugs the orifice.

The body of the plug is of iron, steel or gun-metal, solid with the stalk, and is coated with a soft layer of lead to form a water-tight joint when pressed against the orifice of the tube by the boiler pressure. In sectional boilers, where the tubes are arranged in separate series, it may suffice to put a plug at each end of every series only, instead of at every tube. The plan has been adopted with success by its author, Mr. Ravier, engineer in the French navy, in a torpedo boat with Du Temple boiler, in which the bursting of a tube produced no inconvenience at the moment of its occurrence; the boat was able to continue its voyage, and to put to sea again next day without repair, the burst tube being effectually plugged at both ends by these self-acting bungs. They have now been in use eighteen months in various torpedo boats and tugs, with satisfactory results. The weight and shape of the plugs are so proportioned as to prevent any risk of the accidental blocking the tube ends in a regular working of the boiler. The arrangement is suitably modified for different kinds of boilers, such as the Oriole, the Belleville and boilers with vertical water tubes.

ANOTHER ICE CRUSHER.

A steel steamer is now being built by the Polson Iron Works at Toronto for the Soo Ferry Co. that will in every way be a counterpart of the ferries running between Detroit and Windsor. The bow is of spoon shape and sufficiently strong to enable her to force a passage through heavy ice. The hull is to be divided into four watertight compartments. Her engine is to be a fore and aft compounding 18 and 36x24 inches. Two 11 x 12 feet Scotch boilers are to furnish steam. The craft is calculated to accommodate 1,500 passengers.

MARINE PATENTS ISSUED.

Patents issued February 26, 1901. Reported specially for the MARINE RECORD. We furnish complete copies of patents at the rate of 10 cents each.

- 668,660. Boat Lowering Gear. D. Roche, London, Eng.
- 668,809. Device for Cleaning Ships. J. B. Waring, New-ark, N. J., assignor of one-third to H. L. Fox, New York, N. Y.
- 668,856. Scraper for Ships' Hulls. L. Williams, Lake-view, N. J.
- 668,927. Ships' Compass. H. Bruns, Bremen, Germany.
- 669,016. Anchor. J. H. Shaw, New Haven, Conn.

THE value of graphite as a lubricant, its nature, peculiarities and methods of application are fully considered, both scientifically and practically, in a little pamphlet issued by the Joseph Dixon Crucible Co. This is the seventh edition of the book, which has considerable new matter added to it. A copy of the pamphlet will be sent upon application to the advertising department of the Joseph Dixon Crucible Co., Jersey City, N. J.

THE SYMPATHETIC PINGREE.

The sympathetic, if not eccentric, ex-governor of Michigan, requires to leave his home hunting grounds now and again to get furbished up a little bit.

Col. Eli R. Sutton, his compagnon du voyage, writes a good story on the ex-governor, the incident having taken place on board the Cymric in crossing the Atlantic last month.

One morning at breakfast the purser made the announcement that a birth had taken place during the night. The ladies smiled in spite of their embarrassment. All hands were surprised, as no one had observed any signs or symptoms which made such an event probable. The governor was the first to break the ice.

"Let's pass the hat for the youngster," he said.

He did so, and dollars, even sovereigns, fell thick and fast. Before the governor counted out the coin, while every one looked on in amusement, he asked if the child was a girl or boy.

"Neither!" answered the purser.

"What then?" asked the governor.

"A calf," said the purser, while everyone roared at the governor's expense.

The fact was a calf had been born in the hold during the night.

Either the purser or Col. Sutton ought to have made it a young wolf though if possible, just to make the governor's salt water sympathy more sympathetic for the Wolverine state.

ECONOMIZERS, it appears, are becoming quite out of favor in the Russian navy, as they accumulate on their surface so much soot, which, being a bad conductor of heat, diminishes the steam-producing qualities of the boilers. To clean this away takes up too much time and trouble, and puts the ship out of line for too long. Moreover, it goes hand in hand with the diminution of the general heating area of the boilers with relation to the number of square feet that go to each I. H. P. After a searching examination from all points of view into the good and bad sides of fitting economizers, the question has been decided in the direction of their disadvantageousness, and accordingly none will be fitted in ships for the future.

THE Continental Iron Works, Brooklyn, N. Y., has issued an attractive cloth-bound catalogue of their suspension furnaces, which have proved indispensable in marine boilers. Besides illustrating these corrugated suspension furnaces with both flanged and plain ends, types of flanging Morison furnaces, and removable types, the book gives a large table of working pressure, thickness of corrugated plates and rules for calculating this thickness. The Morison patent furnace front and door, for internal furnace boilers, is also illustrated and described, and a partial list of steamships for which the Morison suspension furnace has been furnished.

ICE REPORT OF THE LAKES.

(PUBLISHED BY AUTHORITY OF THE U. S. WEATHER BUREAU.)

The reports from the regular and display stations of the Weather Bureau on the Great Lakes up to March 5 indicate that on Superior the harbors are frozen solid, and solid ice extends out around the Apostle Islands; at the extreme western end the ice belt is only about eight miles wide; beyond this belt there is open water with ice fields moving to fro with the winds; on the eastern portion, the lake appears to be open. The ice in St. Mary's river is solid to Frying Pan island, but below that point there is open water and no ice visible in Lake Huron. In Lake Michigan the ice appears to be firm over the extreme northern portion of Green Bay, while on the west shore from Algoma south to Chicago there is very little if any ice; on the east shore from Muskegon south to St. Joseph there are large ice fields which move slowly with the wind, and block the harbors at the present time. The reports from Lake Huron are meager, and indicate but little ice in the lake; the large field at the southern end was broken up by the high winds of the 3rd, but this field will probably move south under the high northerly winds of to-day and may possibly cause a pack and bridge at the mouth of the lake. In Lake St. Clair the ice is firm and of greater thickness than has been reported for several years; the Detroit river is full of ice, which is broken up where the ferries keep an open channel. In Lake Erie the reports indicate the harbors on the south shore frozen solid from Fairport to Buffalo, with the ice field extending beyond vision. Open water is reported off Sandusky harbor. There is but little ice reported in Lake Ontario except at the extreme eastern end, where the ice apparently extends from shore to shore; there are no large fields of ice reported over the central portions, but the harbors are frozen solid.

The usual details follow:

LAKE SUPERIOR.

Duluth—Ice in harbor 24.5 inches thick; in the lake the field extends out about eight miles, and averages 14 inches.

Bayfield—Ice in the bay 20 inches and extends solid to the islands.

Washburn—The bay ice averages 24 inches and solid.

Houghton—Ice solid from Ship Canal to the Entry.

Marquette—Harbor ice averages 14 inches and solid; out side in the lake it is broken up and drifting about in small fields.

Sault Ste. Marie—The ice in the St. Mary's river is clear and solid and extends to Frying Pan island; below this point there is no ice and none to be seen in Lake Huron.

LAKE MICHIGAN.

Escanaba—The ice in the bay averages 21.5 inches and extends out as far as can be seen.

Green Bay—Harbor ice 17 inches; on the 3rd the ice was covered with water from thawing.

Milwaukee—Harbor free from ice. Some floating ice in river but not sufficient to interfere with navigation. No ice in sight in the lake.

Chicago—No ice in the harbor; the mild weather of Saturday and Sunday with high winds of Sunday caused the ice at this end of the lake to disappear. Capt. Stines, of Goodrich Line reports: "West side of lake between Chicago and Algoma free of ice."

St. Joseph—There is 10 inches of ice in the harbor; ice breaking up.

South Haven—Harbor ice ranges about 8 inches; out in the lake, the ice extends as far as eye can reach and is moving in and out with the wind. The soft weather of past two days wasting ice.

Saugatuck—Small amount of ice in the harbor; large fields in the lake extending out of sight and moving slowly with the wind.

Holland—Ice in Black Lake 15 inches thick; in Lake Michigan the ice extends out as far as eye can reach.

Grand Haven—Entrance to the harbor blocked with pack

ice. Steamer Nyack which left for Milwaukee the morning of the 3rd was caught between shore and outside drift and is still fast.

Muskegon—The harbor ice averages 8 inches.

Ludington—Ice in Pere Marquette lake averages 15 inches. No ice in the lake off the harbor. P. M. boats come in daily.

Manistee—Lake Michigan is clear of ice at this point; the high wind of the 3rd piled what little ice there was on the beach; river clear of ice. Little Lake solid with 17 inch ice.

Mackinaw—Ice reported from 18 inches in the channel to about two feet along shore; it is windrowed and extends beyond the Beaver Islands on the west and as far as can be seen to the east of the Straits.

LAKE HURON.

Mackinaw Island—Ice extends as far east as Spectacle Reef Light; ranges about 18 inches.

Alpena—Ice in bay about 22 inches thick; open water in southern portion; only occasional ice fields in the lake about the islands.

Oscoda—Solid ice does not extend out from shore to any distance; considerable ice moving with wind off this port.

Bay City—Harbor ice 12 inches thick; 12 miles out on Saginaw Bay ice ranges from 16 to 18 inches.

Port Huron—The ice in the lake near the light-house is 15 inches thick and extends about four miles out; the high wind of the 3rd broke up the field to some extent.

DETROIT RIVER.

Detroit—During the past week the ice has caused trouble to the car ferries; channels have been cut nearly to Fighting island by the ferries to let the ice down. It is now broken up down to 12th street. New ice was formed on the night of the 3d and the cold weather has stiffened up the loose ice. The ice in Lake St. Clair is reported of greater thickness this winter than for several years.

LAKE ERIE.

Toledo—The ice in the harbor has decreased from 13 inches on Feb. 28 to from four to eight inches on the 4th. In the bay the ice is reported from 10 to 14 inches thick and the field extends out many miles.

Sandusky—Harbor ice averages 14 inches; the ice only extends a short distance into the lake.

Cleveland—Large fields of floating ice outside the break-water in all directions, as far as the eye can reach; harbor ice averages 12 inches.

Fairport—Harbor ice about 12 inches; in the lake the field extends as far as the eye can reach.

Erie—Harbor ice averages 14 inches, and in the field extends out into the lake beyond vision.

Buffalo—Harbor ice averages about 11 inches; in the lake the field extends from shore to shore as far as the eye can reach.

LAKE ONTARIO.

Charlotte—The ice in the harbor averages about 10 inches and not firm; only small fields moving with the wind out in the lake.

Sodus Point—Harbor ice averages 18 inches and solid. Very little ice in the lake.

North Fair Haven—Harbor ice solid with 19 inch ice; no ice visible in the lake.

Sacketts Harbor—Harbor ice averages 22 inches, and extends out into the lake beyond vision.

Cape Vincent—Ice in the channel thin; no open water in sight.

NORMAN B. CONGER, Detroit.
Inspector and Marine Agent.

THE following sales are reported by the Bullock Electric Manufacturing Co., Cincinnati, O.: Glasgow Evening News, Glasgow, Scotland, three motor generators; London Daily Express, London, Eng., three motor generators; Montreal

Water & Power Co., Montreal, Can., one 400 horse-power three phase motor; Aberdeen Journal, Aberdeen, Scotland, one 30 horse-power teaser equipment and one motor generator; Carnegie Steel Co., Pittsburgh, Pa., one 25 horse-power type H motor; Greuner & Co., Johnstown, Pa., one 30 K. W. type I. generator; Brown & Sharp, Providence, R. I., four type N motors for direct connection to machine tools; Wier Frog Co., Cincinnati, Ohio, three 10 horse power type N motors; Pullman Co., Pullman, Ills., two 150 K. W. type H generators; Mosler Safe Co., Hamilton, O., one 50 horse-power type H motor; Susquehanna Valley Electric Co., Sidney, N. Y., one 65 K. W. single phase generator; Central Lard Co., New York City, N. Y., one 65 K. W. engine type generator; Buffalo Evening News, Buffalo, N. Y., one 70 horse-power type H motor.

SOMEONE has gone to the trouble to figure out that in 1800 there were in all the world less than 50 shipbuilding yards. To-day there are more than 700 ship building yards, turning out a total of 1,000 vessels yearly.

Government Proposals.

U. S. ENGINEER OFFICE, 1637 Indiana Ave., Chicago, Ill., February 4, 1901. Sealed proposals for dredging in Chicago harbor will be received until 12 noon, central time, March 12, 1901, and then publicly opened. Information furnished on application. J. H. WILLARD, Maj., Engrs. 6-9

U. S. ENGINEER OFFICE, Pittsburg, Pa., February 7, 1901. Sealed proposals for completing two locks and dams and building four locks and dams on Monongahela River, above Morgantown, will be received here until 12 M., March 9, 1901, and then publicly opened. Plans may be seen here. Information furnished on application. C. F. POWELL, Maj., Engrs. 6-9



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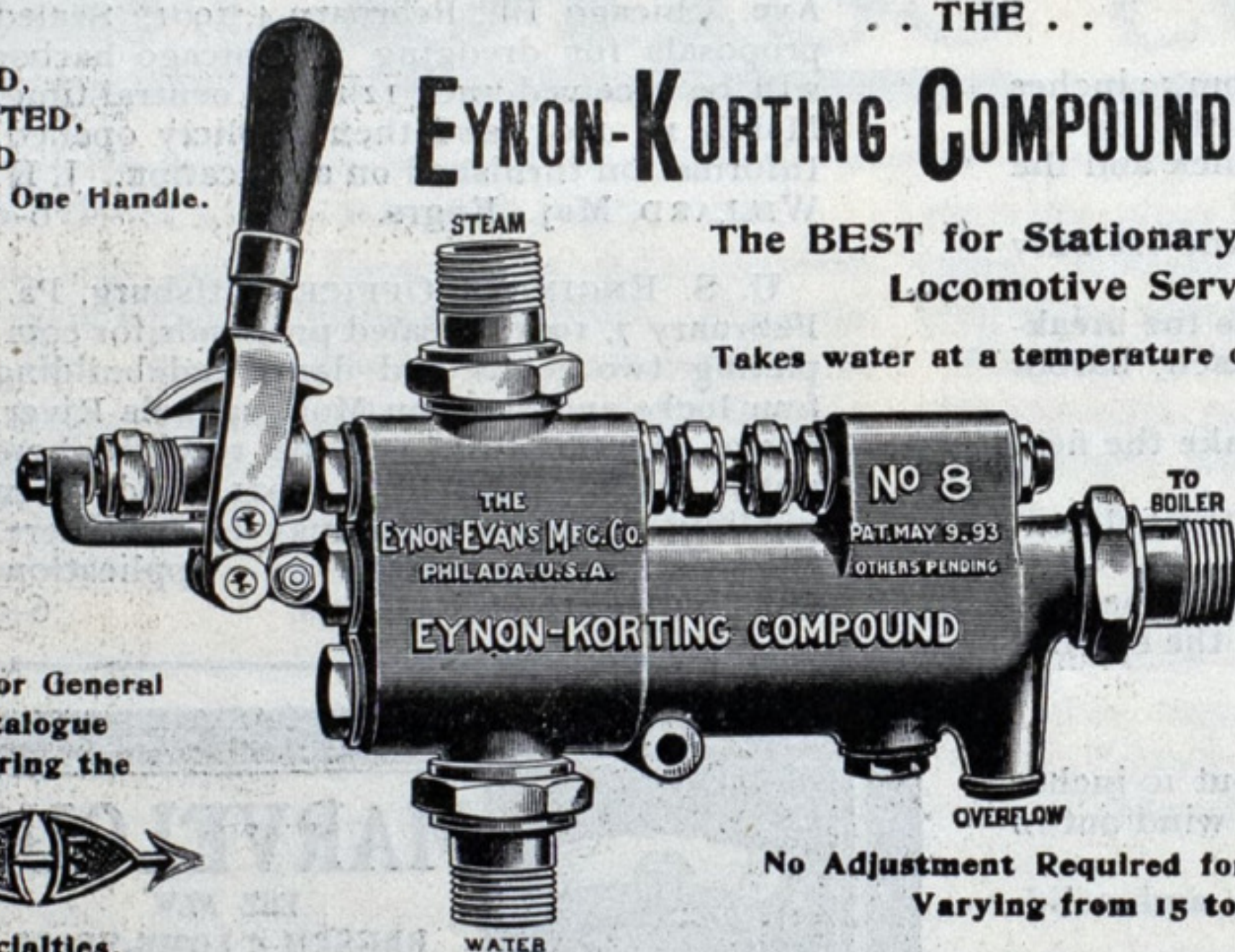
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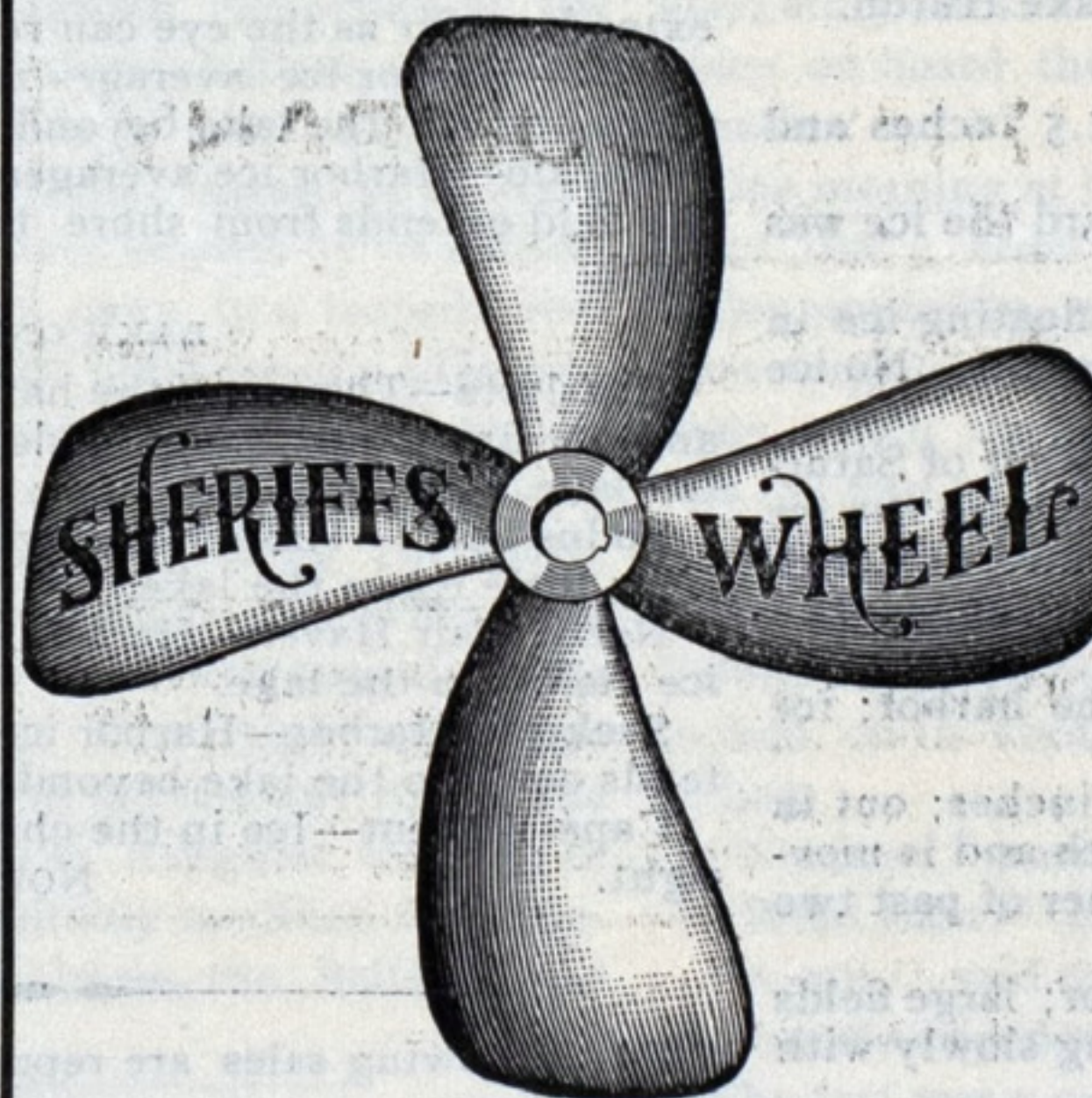
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land, O. 16-17

U. S. ENGINEER OFFICE. Custom House.
Cincinnati, Ohio, March 6, 1901. Sealed
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Chanoine dam of navigable pass at Dam No.
2, Ohio river, will be received here until 2
p. m., April 10, 1901, and then publicly
opened. Information furnished on applica-
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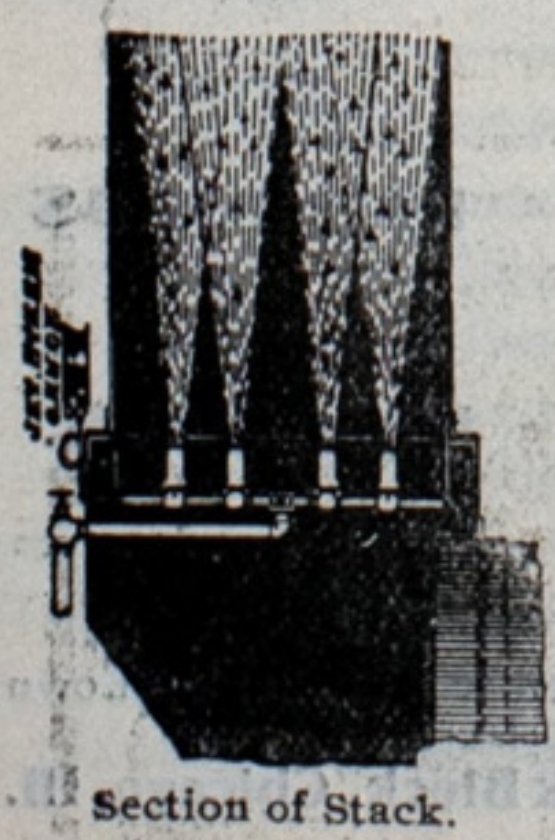
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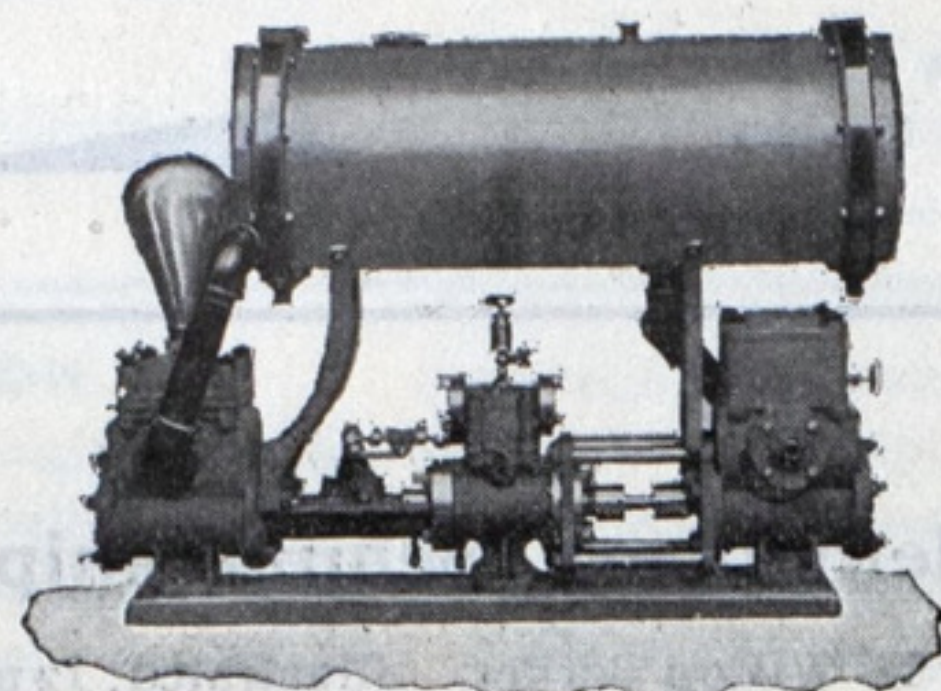
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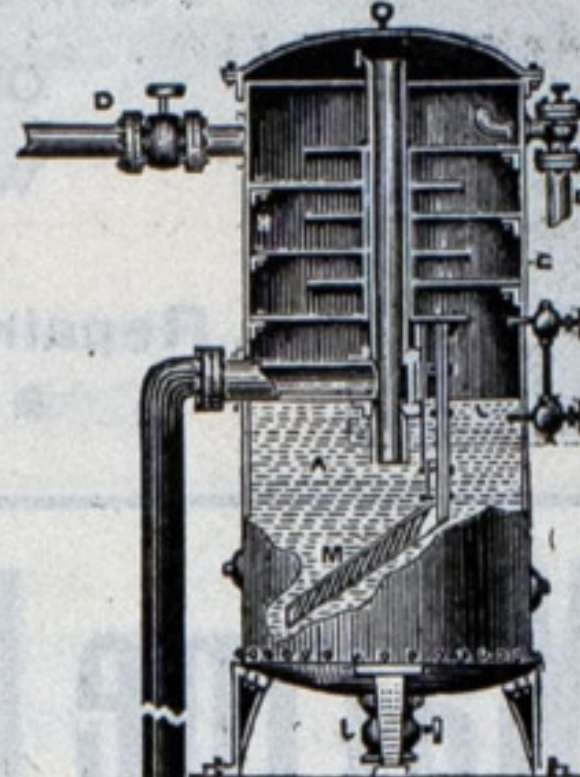
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Lake Michigan & Lake Superior Trans-
portation Co.'s steamer Manitou.

Bessemer Steamship Co.'s steamers S. F.
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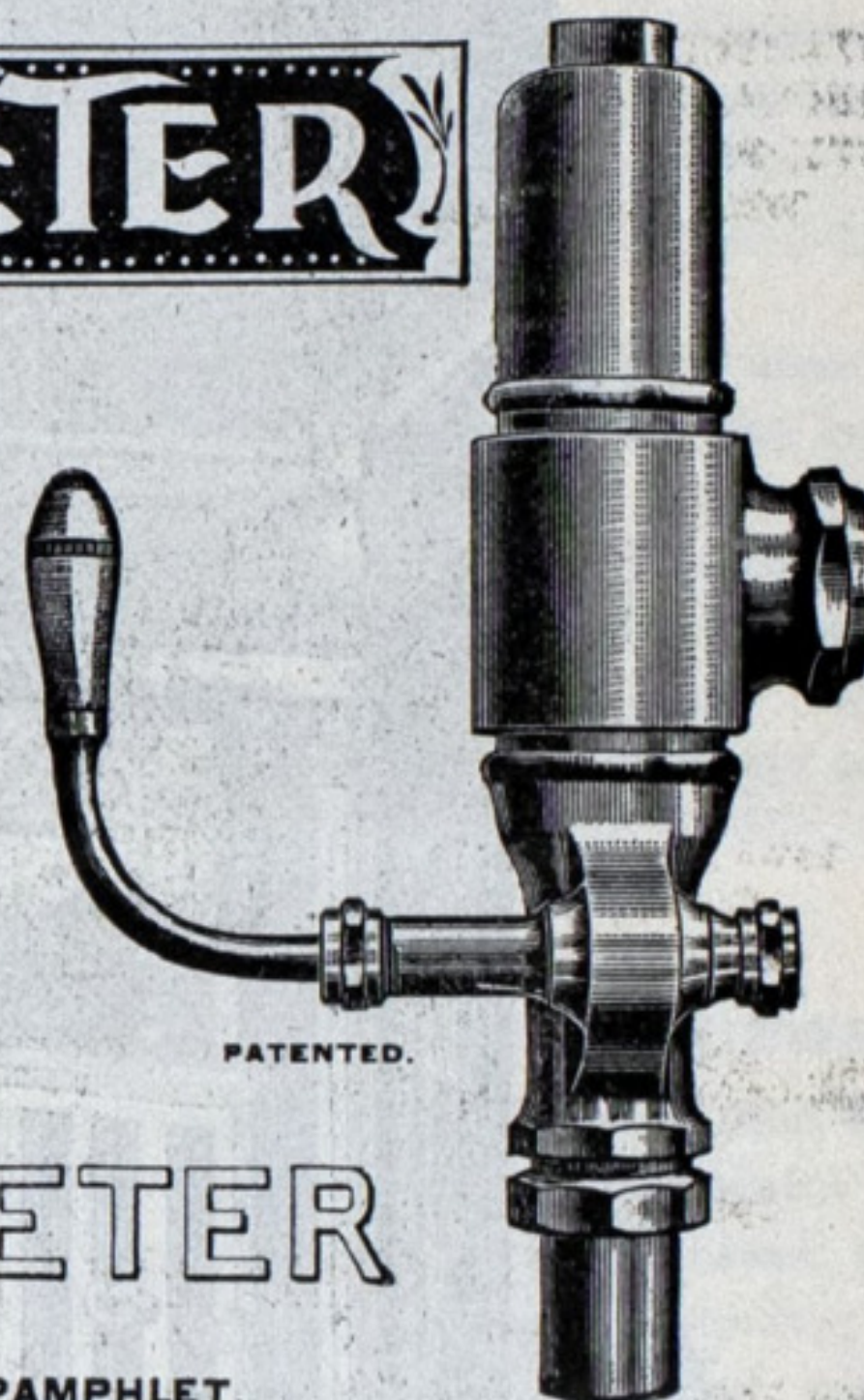
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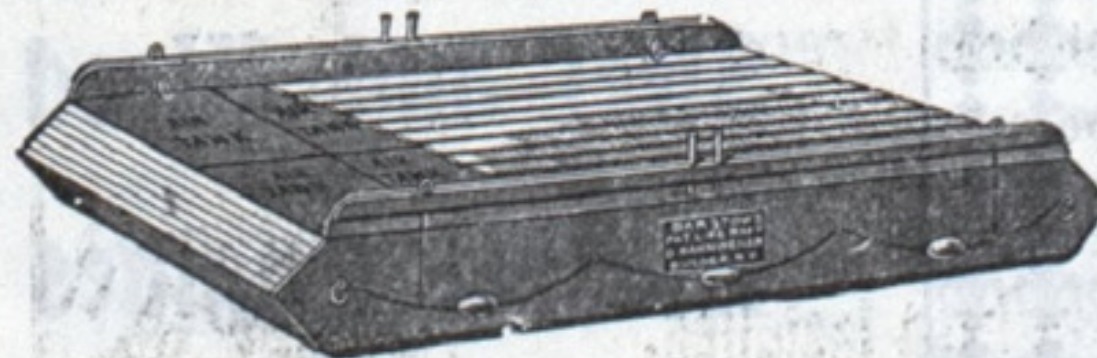
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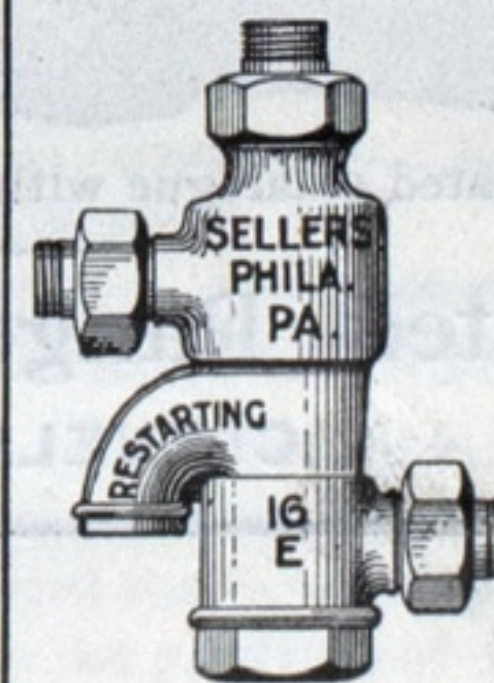
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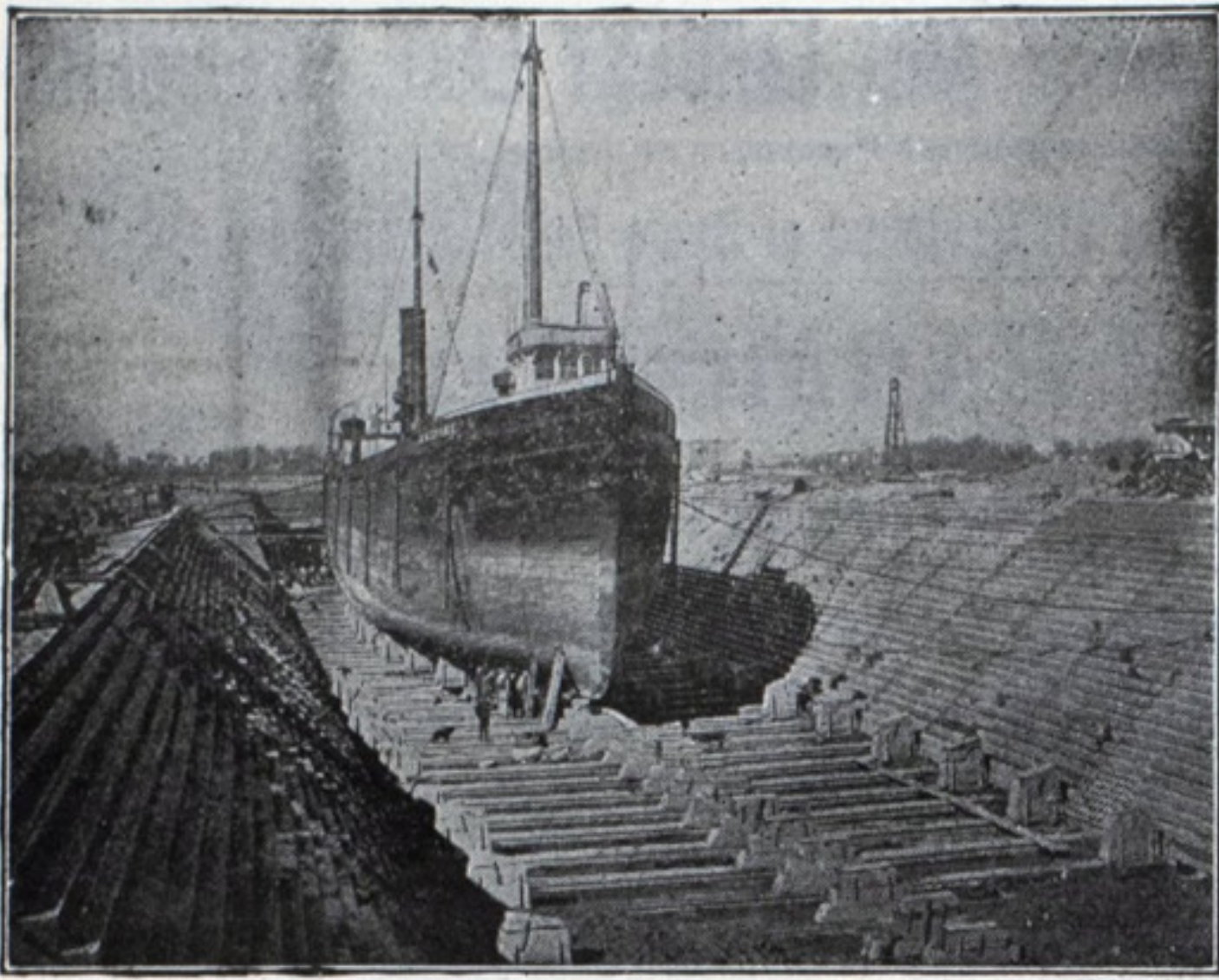
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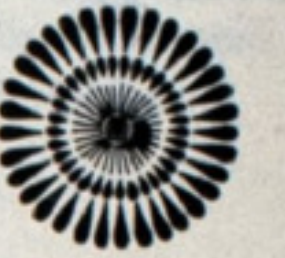
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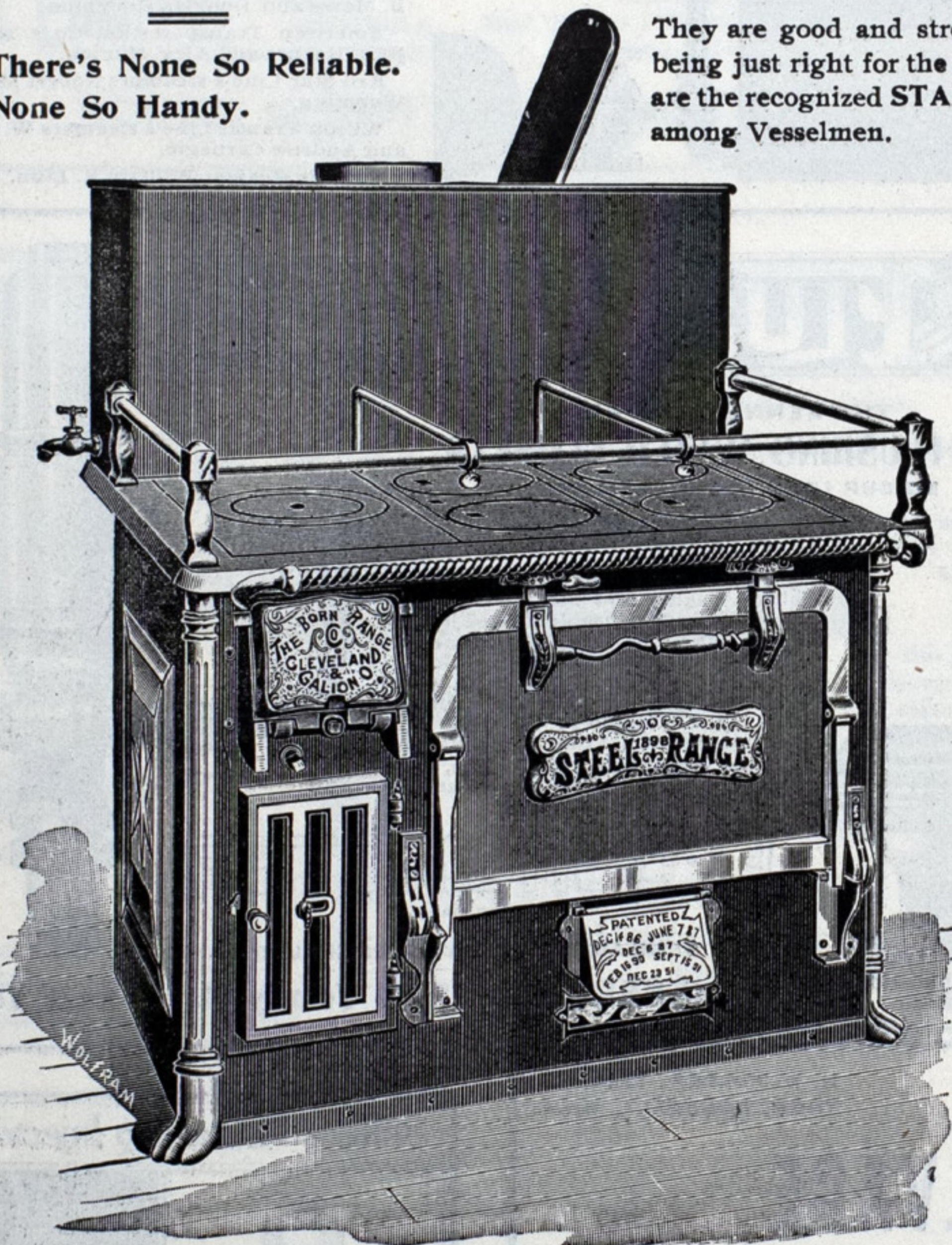
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